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THE AGRICULTURAL MAGAZINE,

For JUNE, 1803.

Embellished with a Descriptive Plate of a Feeding House for Cattle.

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AGRICULTURAL
MAGAZINE,

FOR
1803.

A MONTHLY PUBLICATION,

DEVOTED TO

Farmers, and to Rural Affairs.

"He that causes two Blades of Grass to grow where only one grew before, is, so far, a Creator."—SWIFT.

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PREFACE.

IN this Volume, it will be seen, that we have put in execution a plan which we have had some time in contemplation, that of confining ourselves to one subject, and to a subject which is surely worthy of a distinct and appropriate publication. Our Magazine will in future be restricted to the admission of such matter as is purely Agricultural. And in the adoption of this plan, we are very happy to find that we have not only consulted the requests of some of our Correspondents and of our own judgment, but the pleasure of most of our readers, and our own interest likewise. We were apprehensive that the execution of this design might be attended with the loss of all our commercial readers; but this has not been the result, for the number of our readers is increased instead of suffering diminution. A perseverance, therefore, in a plan which is evidently agreeable to the taste of those whom it is our duty above all things to strive to please, may be expected by them, and with such exertions as may merit a continuance of their approbation.

Our exertions, however, will be of little avail if they are not aided by the attentive and kind communications of those who wish well to the cause.

The contents of this Volume will be found not only interesting, but very important to every husbandman who wishes to advance either in science, or practice.

The turnip culture, which is the ground work of the agriculture of many districts, has received peculiar attention in this Volume. Stock, particularly sheep, has as usual been very judiciously brought before us, by several skilful breeders, both in their long and short, coarse and fine, attire. And the quality of South Down mutton has been discussed, particularly by Dr. Wilkinson, in a way that demands admiration. The Drill-system and Irrigation have here received much illucidation, and likewise the properties of the Dairy.

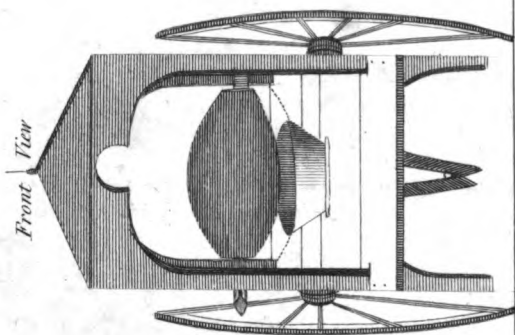
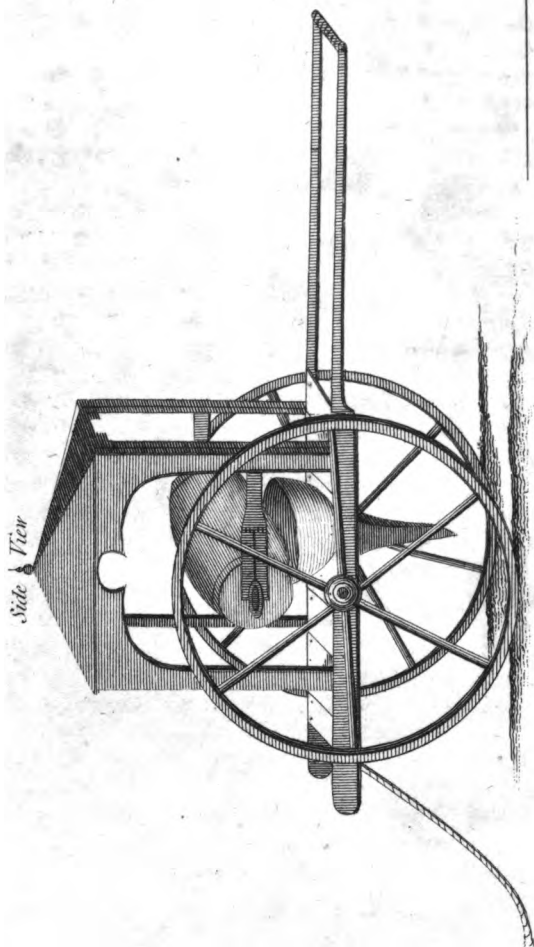
A course of crops, peculiarly to our taste, "of two green crops to one corn crop," has been exhibited, in its effects, in a very favourable point of view, by a well known writer, Mr. Middleton. This subject will be found further treated in our next Volume.

To such of our readers as have not in their possession the works themselves, we beg leave to recommend an attentive perusal of the extracts which we have given from Dr. Darwin's Phytologia, and from Dr. Hunter's Georgical Essays, and likewise to the able Speech of Lord Carrington.

Our Agricultural Report will be found comprehensive, but not complete, till we shall receive communications from the Secretary of every Agricultural Society in the Kingdom.

E.

HERTFORDSHIRE TURNIP-DRILL.



THE AGRICULTURAL MAGAZINE.

No. XLII.

JANUARY 1803.

[VOL. VIII.]

HERTFORDSHIRE TURNIP-DRILL.

WITH A PLATE.

To the Editor of the Agricultural Magazine.

SIR,

Fakenham, Jan. 11, 1803.

THE gentleman who signs himself "A Traveller," in your last number, will ere this have seen the description of the Hand-Drill for sowing Turnips,* which I sent you last month, and will now have an opportunity of comparing it with the sketch that accompanies this.

I will not vouch for its correctness in every part, having delineated it from memory only. To my former account of it I have only to add that of the two arms supporting the barrel, that which has not the little iron wheel attached to it, does not move on an hinge as the one nearest to us in the plate does, but if I remember right, is itself a spring to drive the seed-barrel up to the passing spokes of the wheel, as often as it retreats, thus giving a motion to the seed vessel similar to that of a sieve. Many of your readers will agree with the Berkshire Farmer, that one great impediment to the general introduction of the new system of husbandry is, the extravagant price of all the late improved implements; but it is particularly to be lamented that so useful an article as Cooke's Drill-Machine should not be more simplified, so as to render the purchase of one easy to every occupier of land, for at present none but the wealthier part of the community can possibly afford so large a sum as eighteen or twenty guineas, for a single implement of husbandry. Mr. Cooke's improvement on all former drills, is undoubtedly ingenious and well intitled to reward, but he must excuse me if I hint that the extraordinary demand for his drills, which he has experienced for the last six or seven years, has not been *solely* owing to the merits of his invention (great, as all allow them to be,) but in a very great measure to the enormous high price of grain, which has caused a greater influx of cash for a while than ever before experienced, and has diffused a spirit of enterprise among a class of men, who would otherwise have still pursued the beaten road which their grandfathers trod, without the courage to make a single attempt at any, the most reasonable scheme of improvement.

No. 41, Page 409. * Erratum. for *Aston*, Herts, read *Aston*, or as it is pronounced, *Arston*.

Ag. Mag. Vol. 8.

B

But these times are gone by, and the *rage* for "farming" will doubtless subside in due time to its level, and when ten quarters of barley shall cease to purchase a drill, the sale will not be quite so brisk.

It has therefore struck me, as likely to prove beneficial to the farming interest, if the most necessary implements of the latest improvement, were made and sold on a *small scale*, and at reduced prices. I grant, that it will be impossible to sow so large a space with an hand-drill as an horse-machine, in a given time; but who will say that the seed cannot be equally well sown by the former, as by the latter?*. Thus, would all the advantages flowing from the use of Cooke's machines (sowing seed, hoeing, scarifying, and earthing up the corn, be fully attainable by the occupiers of small farms, and on such terms, as would induce them to become purchasers. If the patent granted to Mr. Cooke, would be infringed by the use of these hand-drills, let him take the plan into consideration, and try the experiment himself; but if, as I am inclined to think, any indifferent person may safely apply the principle, (which, by the bye, did not originate with Mr. C.) of "*cups turning on a cylinder in a circular cell*," to a light machine, with one wheel, to be used by hand, I would recommend a trial to such of your readers, as are disposed to make the experiment, assuring them, that it is not impracticable. Before I venture a description of one, which I have formed for my own use, I should be glad to be informed, whether such an idea would be considered as infringing on Mr. C's right.†

I could not be supposed to recommend carting off and housing of turnips, as a *general* practice; so far from it, I hold every turnip, not fed off upon the land, as robbing its parent soil of much valuable manure, as well as the benefit arising from the *treading* of cattle; an object much to be desired on all light, dry, land. I only meant to obviate the general objection, which the Farmers of wet clayey soils have to the growth of turnips, by observing, that "the laying them up in houses as early after Michaelmas as may be, will enable

* Supposing small drills to be universally adopted, (which we think may be done with equal advantage to the Farmer and the public.) We would venture to recommend Mc'Dougale's hoe or cultivator, to be drawn either by a stout girl or boy, and held by a smaller boy.

E.

† Of a small one shared hoe or cultivator, I have already sent you a drawing. Since my letter which accompanied it, I have had great reason, (on threshing my wheat which was cultivated by it,) to believe, that to it I am indebted, for at least one quarter per acre *more*, than I should otherwise have reaped.

the Farmer to give his cattle a constant supply all the winter, without the necessity of going into the field for them, at a season, when every foot-step of an horse is essentially prejudicial to the land, if not altogether impracticable.

I am, Sir, &c.

AGRICOLA NORFOLCIENSIS,

We presume that using caps turning on a cylinder in a circular cell, would not be deemed an infringement of Mr. Cooke's patent, or Mr. Amos would not have ventured to apply them to his drill; indeed, Mr. Amos is not the only person we recollect to have used metal cups, as the late celebrated Mr. Winlaw, of Margaret-street, Cavendish-square, constantly applied them to drills of different constructions; nor do we believe that Mr. C, as Agricola Norfolkensis observes, means to assert that he is the original inventor.

E.

SYSTEM FOR MAKING POOR LAND RICH, CONSEQUENTLY MORE PRODUCTIVE.

FOURTH ESSAY ON RURAL ECONOMY.

To the Editor of the Agricultural Magazine.

SIR,

FIRST, I object to the national expence of extensive bounties, and am of opinion that an attempt to propose heavy and extensive premiums which the public are liable to pay, would not be the best mode to be adopted by government for the improvement of Agriculture. I allow whenever bodies of men or individuals nobly come forward in directing premiums for the encouragement of any useful art, their exertions are right and meritorious, the bounties are properly distributed, they benefit the country, and do equal credit to the donors and receivers. But that would not be the case out of the public purse, for it would be very hard to tax the sloven by making him pay out of his scanty earnings, money, by way of giving emulation to his more enterprising neighbour, whilst certainly the indolent practitioner is sufficiently punished by the deficiency of his own crops, which a little forecast and industry might have enlarged, and particularly as a less expensive mode than *seventeen millions of money* may be thought of, as will herein after appear.

This paper is continued from November, page 375, for the purpose of introducing the establishment of a system, to produce a more regular and abundant supply of provisions for the uses of the united kingdom. But this would more effectively convince the world, and answer the purposes better, were the regulations first introduced into the five home counties of Middlesex, Hertfordshire, Essex, Kent, and Surry, for the supply of the metropolis, and the surrounding villages for ten miles. Should it be so fortunate as to succeed within these counties, it would from thence easily extend itself over the

whole imperial realm; and I am not certain whether it might not be extended to, and successfully applied in, the West-Indies.

I am attempting a system without the least ostentation, otherwise, than the desire of proposing something for the public good, and shall therefore present a few essays on culture, which when collected, it is hoped, may be deemed worthy the attention of the Board of Agriculture, for rendering poor land rich, and more productive.

The reason of preferring a Magazine for the first publication of the respective papers, is by that mode the thoughts will lie open for observation, and may be taken up and acted upon by persons on a very small scale, by way of experiment, before the business can be so far brought forward as to secure the concurrence and countenance of the country, for making an effective and valuable system. There certainly must be time allowed for Government to look into the system before they can be called upon to grant indulgences; the papers were expressly written for administration, though now addressed to the people: it is rational experiments I am searching after, let the advantages arising from them come from what quarter they may in the system, much may be done by proper attention, without putting the state to any unnecessary expence.

Being in Parliament I twice or thrice attempted to introduce there the system to which I allude. But the times of war and scarcity were not the proper seasons for new plans, to introduce internal improvements; the dearness of the markets for stocking the land, &c. might also have overturned the regulations before they could have been sufficiently established; and being requested from authority to wait until the temporary expedients of importation, and other exertions, to guard against the then pressure occasioned by defective crops, and the imprudence of publishing a noble Duke's letter had been tried; I submitted, because attempting any thing new, might so far have taken off the public mind from the immediate necessity of looking to foreign supplies, as might have had a bad tendency.

The new arrangements I am attempting to propose cannot be brought to perfection without much economy in those who are to have the management of the system, and it must be aided by the countenance of the administration of the country, or it will avail nothing; and as it carries no patronage with it, I fear it may perhaps prove unsuccessful, and my time and paper be thrown away; these apprehensions, however, make but little impression on my mind. The attempt being intended for public good carries its own reward with it.

The papers forming the different Essays have been written some time, and only want being a little more methodised, therefore I must request of those engaged in the same rational field of improvement, not to run before me, as what may to them appear an omission, I may probably introduce into the next Number; and about twelve papers, will, it is presumed, compleat the work of presenting to the public a connected system of making poor land rich, and consequently more productive.

Let no one despise the mode because the means are slight, for all animal and vegetable nature, it is known, arise, and are continued, from small beginnings. Should I be as fortunate in this attempt as in compleating a former work which engaged my attention for more than twenty years, I shall then esteem myself as having been happily employed, from mankind being benefitted by my observations and exertions.

This system of culture, like every other plan which is doomed to take its rise from small beginnings, nay, even to commence from poverty itself, and by its intrinsic merit, and the powers of its own combinations is thereby expected to gain an ascendancy over the public mind. From such slight introductions, the process of course must be expected to go on very slowly towards the completion, therefore we must crave indulgence from the public, for the system from the commencement, will require twenty-one years, and there will be no fault in this delay, provided it can be proved that from the introduction a regular advance will be gradually going on.

I would attempt to prevail upon the public to look upon five years, from the first marking out the ground, as a space of slight consideration, then the world might come and view the lands, and they would see with wonder and surprise, the appearances the respective spots (suppose one hundred in each county,) should have assumed, which may have been so fortunate as to have been selected, and fallen under the culture of what I choose to call the Herdsmen's Farms, conducted under a very enlarged system of extensive foldings, to enrich and give energy to the land, and by raising hovering crops, they will, at the same time, destroy the weeds,

Although I would, in this instance, wish to guard against unnecessary objections to what at first may not be much understood, yet, during these five years, much money must be expended, with assiduity, patience, and economy. The herdsmen on whom the management will naturally fall, must of course, be constantly alive to the interest of their employers; and be active, sober, and frugal, then they may say "now come my masters, look, see! are not these fields in a very different state of culture and product, to what they were under the former management;" and though we are placed here in

the most populous counties in the kingdom, they who will only follow our example may be assured the method is equally applicable to the most distant estates; the only difference would be, those spots would not produce so much profit in their particular situations not enjoying the advantage of such populous neighbourhoods for the consumption of the products raised on the lands. The herdsmen may further request gentlemen only to look at their children, they are orderly clean and healthy, each receives the wages equal to his earnings; they rise with the morn, do the little business their tender age is capable of, with care and assiduity, knowing as they grow up they will be removed into the families of respectable farmers, who will keep them much better than we can afford to do, and having been taught the agricultural profession, of which they had here received the first rudiments, and having, as it were, served an apprenticeship and arrived at maturity, we hope they will become useful members of society.

Those who feel a desire for promoting national happiness in the lower orders of mankind, I know will readily excuse this digression, others may think such digressions improper in a system of agriculture; these last persons are very little acquainted with human nature; but as I am solely animated with the hope and expectation, that something praise-worthy may result from these Essays, I could not refrain presenting a Perspective of what the Herdsmen's Farms are capable of producing for the country.

From them may result much rational employment, an increase of the married peasantry, and an opportunity of making many useful, valuable, and ingenious experiments, which the country stands much in need of, for the extension of the science of Agriculture. Further, teaching the yeomanry by example, what roots and green food may be raised for cattle, the proper depth of ploughing, what manures, and how the due admixture thereof, are the best calculated for the respective soils to the ultimate benefit of culture, (and consequently these combined considerations,) must become an additional stimulus to the adoption of the proposed plan, surely then these are well worthy the care and patronage of the prime minister of the first empire in the world. As to wealth, navigation, and trade, with useful, ingenious, and polite arts, each is respectively guarded by good and wholesome laws for the due support and improvement of them.

Benjamin Bell, esq. an author of deserved repute in rural economy, and well worthy of attention, (although I object to his idea of premiums,) says, in No. 34, page 375 of this Magazine, "it is a truth which holds universally, that the working husbandmen have contributed less than any other class of labourers, to the improvement of the progress and general

system of their own profession." A more striking truth never fell from the pen of any man, but Mr. Bell does not seem to see the cause; the persons he alludes to are not capable of delineating upon paper the different improvements which may be introduced into agriculture, or to attend to the construction of their own machines; their business is actual labour, and were they, or rather the great bulk of mankind, to turn their thoughts to improving the substances they are employed to work upon, they and their families must starve. *Do as you are directed*, are the injunctions for the great body of mankind in their respective countries; let the degree of rational improvement be arrived to what it may.

In a well ordered government, or the least above a state of barbarism, each person must in some measure keep to his own station and profession; the labourer is to dig and delve; the orders above him have their employments and avocations. The minister of the country, although he does not look upon agriculture to be under his care, he has his duties, and extensive ones, too. He must in Parliament, lead the public mind to the support of such plans, as tend to the general order and happiness of the state; look to connections, policy, regulations, subordination, and taxation. He is compelled, with a jealous eye, to be ever ready in guarding his own power, or he will lose it; be sure to be master of the state of the finances of the country, quick in raising the revenues for the public service, let the claims come from what quarter they may; and although in the department of taxation, the ministers of Britain have in each age, from the wealth and industry of the people, found large and ample resources, yet, it may be said, that the ministers of the country in succession to the present time, have each done nothing for the improvement of agriculture; look to experience or to history, and no one will presume to say, that the former ministers of state have been blessed with high agricultural knowledge; certainly very little has come from that quarter for the last sixty years; then refer back into the history of the country, and for what we are labouring to find, we meet a perfect blank, until you reach so far back as Sir Francis Bacon; his mind was illumined, he was a philosopher, studied the operations of nature in her own works, and many of our best principles in agriculture originated with that great man; he had a clear comprehensive turn of thought for the investigation of truth, his mind was capacious, and his judgment sound.

Do not let us in endeavouring to point out a defect, mistake the cause; it is not that the minister's mind is incapable of acquiring the science of agriculture; it is that each great man having by the power of his connections, and the strength of his own judgment, secured to himself that high station,

goes on in the regular routine of his predecessors. He looks upon the due tillage of the land as a mean mechanic art, and beneath his notice, not considering the proper value resulting from establishing the comforts and happiness of the great body of the people, that out of them arise the different orders in society, they are the means of supporting the arts as they take to trade; they lay the finest and most certain sources for taxation which can be introduced; for taxes arising from the productions of trade and commerce are more effective, are easily and naturally collected, without the appearance of much oppression on the people. I hope the justness of these observations in these two pages, will guard them from reprehension; therefore, in future, let it be looked upon as a part of the minister's creed, to foresee events and changes of habits in the people, as undoubtedly a material part of the pressure of scarcity which we have felt, was originally brought about by the people having gradually for the last forty years left the plough, and gone into arts of trade; for at present, the working agriculturists are insufficient for the labour of the country, from which the work is performed in a slovenly and expensive manner.

The minister should learn to know, that when mankind relinquish the laborious employments of agriculture, and betake themselves to the loom and other arts, they acquire more wages, are more regularly collected into bodies, assume a consequence among themselves; they and their families live better, cause a greater consumption of the more expensive foods, I might say almost double, (and such they will have too, if they can be obtained,) and these changes of habit, though they cannot be prevented, must be regularly foreseen and provided for. It is not wheat alone which has been dear, for the rise on provisions has fallen on every article of consumption, and was heavily felt by each order in society.

One of the noblest expressions recorded in history as a test of good government, is what Henry the fourth of France said to one of his courtiers; "were it possible, I would conduct the state in such a manner, that every worthy peasant should have a capon for his Sunday's dinner." I know this is not quoted correctly, it being long since I read it, though the brilliancy of the thought could not be effaced from my memory.

Sixty years back, nearly half the people in the island were somehow employed in agriculture, consequently one person was to work for raising substance for two, and this was performed as an easy task. Now it has been proved by the return of the population of the country to the house of commons, that there are few more than the eighth part of the people actually employed, and gaining their subsistence in agricultural pursuits; what a wonderful disproportion for under

this statement, ONE is to work for EIGHT ! But on this I shall not dwell more at present, as population is to form a separate paper, with a view of pointing out how it may be extended among the married peasantry, to the strength and benefit of the country.

Yesterday the corrected population return was brought me, and it appears " the metropolis of England, at once the seat of government, and the greatest emporium in the world, claims a distinct notice—situate in two counties, divided by the Thames, and ranked under five heads, at nine hundred thousand persons ;" such a body of people united, must have a material influence on the consumption of the provisions of the country ; and indeed it is wonderful how such a call can be regularly and timely supplied.

THE METROPOLIS CONTAINS :

- 1st, City of London within the walls ;
- 2d, Without the walls, including the inns of court ;
- 3d, City and liberty of Westminster ;
- 4th, Out parishes within the bills of mortality ;
- 5th, Parishes not within the bills of mortality.

I have said, ministers have not attended to agricultural pursuits, yet they could easily have acquired such information did they but deem it a necessary part of their profession, and think that they were in some measure answerable to the state, to be, as it were, the Guardians of Plenty ; for this end ministers should compare present existing circumstances with former habits, trace the causes, and from them draw due conclusions. In their closets they should contemplate, and from their own minds ask themselves, why was Britain an exporting country for thirty years ? Since, it has been wavering and uncertain, sometimes importing, then exporting, but never steady : and, according to the present disposition of mankind, I predict, exportation, to any great extent, is over. Many causes may be assigned for this, not necessary to the present purpose, and happy will it be for the country, if we can raise wheat, each year, sufficient for home consumption.

Do not imagine I am so ignorant as to suppose the minister can spare time to attend lectures on agriculture, yet he may extend his views to the *prudence* and *policy* resulting from a well digested system ; these are the principles aimed at in this essay ; the plenty looked for is the consequence to arise from making the productions of land more consonant to the support of a country in a very high state of opulence. We, of this age, are not content with the food our forefathers subsisted upon, with comfort, a hundred years back.

It is a well known fact that the wheaten crop, at an average price, produces little return of profit to the grower, when compared with the expences attendant on that article ; this is

meant in reference to other crops, and it is regularly observed, when common field land is inclosed, the crop of wheat in rotation does not return so often as the other productions.

I have no difficulty in saying the scarcity we have felt has arisen from many causes; first, the defective crops; secondly, the habits of the people being changed, called for a greater consumption; and thirdly, the speculations of monied men. These causes united, have cost the country (including the former importation) eleven millions of money, or rather more, as appears from parliamentary papers.

The end of October I returned from a long tour through the corn countries, and fortunately there never was a better appearance for the effects of a plentiful harvest, particularly in barley. The productive supply of the arable land has failed thrice between the years 1793 and 1801; that is, the harvests of 1794, 1799, and 1800; and will as certainly fail again, whenever Providence, for wise purposes, shall send untoward seasons. The product of the soil may often be inadequate to the consumption of a year, and not be much noticed, should there be stock in hand; but whenever two scant years may come together, though the deficiency may be but little, art will directly go to work. With this government cannot interfere; food is a merchandize, and all matters of trade in a commercial country must, as to price, find their value at a public market, and each attempt at regulation by the minister only raises the price so much the faster. All the minister can do is by leading the public mind to an extensive importation, or any other rational measure, as may best suit the occasion. This is necessary, were it only to avert the discontents arising from scarcity.

Importation has very properly been brought into practice twice, and it must be allowed, very happy for any country, when in want of provisions, to be able to import them by credit and the public purse; but rationally considered, the landowners feel that every guinea so expended is just so much taken from the agriculture of the country. Do not imagine I am going to portend an evil, but a very rapid and quick decline in price now would operate as a real misfortune. It should be considered that either an unexpected rise or extensive fall on such an article as wheat, the staple subsistence of the great body of the people; either of these events, I say (a great rise or too rapid a fall) must affect the well being, subordination, and good order of government, and should be attentively guarded against as much as possible, and no means better than regular plenty to keep the prices low and nearly equal.

It has been often advanced that he is the most expert Agriculturist who does the greatest extent of business at the smallest expence, Undoubtedly the opinion is a good one,

and suits very conveniently with the bulk of mankind; and, as a prudent character, I should be the last person to except against it, for it carries more men through the routine of business, to a good old age, than any other principle that either philosophy or bright talents can establish. However, as it suits with our conveniency to enforce that this system of improved agriculture now attempted to be introduced will be of no value, but as it can be forced and forwarded by the power of money, let us come to some comparison:—It may be advanced amongst a set of good women spinners, suppose the current price of a spinning wheel to be ten shillings, that he has improved the art of spinning who has produced a wheel equally good at eight shillings. The idea being so stated, the principle cannot be controverted; but in the arts, what regard should be shewn for the men who have introduced the extensive cotton, thread, and other manufactures of the country, as the ground and support of our foreign trade and commerce? And in like manner to him who shall point out the mode, by the power of money properly directed, of nearly doubling the whole agricultural productions of the soil to as great an extent of land as the system is permitted to pass over, and prevent the necessity of any material importation of wheat, which undoubtedly ought to be as nearly as possible of our own growth. And as a proof that these thoughts, as to an extensive growth of provisions, have their foundation in nature and experience, a great naval character has actually produced one of the most compleat estates in the country, both for elegance and design; and as to production of profit it is unnecessary to make any remarks, as his own ample recital of the management, with debtor and creditor, are each fully submitted in print by the Honourable Planner himself, for the information of the country at large, and goes far beyond what I want for the establishment of my system of Herdsmens' Farms, which was planned long before I knew any thing of this in Kent, and am happy to be able to bring so good a proof of what nature is capable of performing, as to the power of culture, when properly conducted. In our system the difficulty will not rest in bringing nature to perform her office, but hinges on a much more fleeting quality, how to convince mankind by argument, before the experiments can be properly introduced, in support of the assertions. Fortunately our two systems concur in this valuable principle—from the production of plenty to secure actual profit to the individuals engaged therein, and benefit to the country.

This 4th essay has insensibly run to a much greater length than I intended, and yet I must record one of the most extensive struggles which Europe has been engaged in for some centuries. The country has been involved in such a contest

for the last twelve years, that the very existence of order, in the civilized, world stood in the most imminent danger. The madness of the times went nearly to the levelling all distinctions in society, and, under the name of equality, would have introduced barbarism and oppression, had not Britain, as the friend of humanity, stood forward the champion of social order. During the events of this contest, the independence of these isles was happily preserved, by the power and energy of Parliament, supported by the full confidence and voice of the people, aided by the valour and discipline of our fleets and armies; and when the strides of despotism had nearly subdued the strength of each state in Europe, capable of making any resistance, the fate of Britain was to have come next; for the French army having little other work in hand, were collected for invading England, and was placed opposite our own coasts (the state of the contest stood nearly as below:*) here collected, they probably might have succeeded, had not the seas opposed a passage, when the true spirit of our ancestry revived in every breast; the nobility, gentry, and inhabitants of the country armed themselves, in the common support of King and Constitution.

These remarks are so well known that it may appear foreign for me to introduce them, had it not been to pay due tribute of compliment and praise to two great men.

From the beginning of this contest we were happy in having at the helm of public affairs, a statesman of a bold and daring spirit, clear and comprehensive mind, unbiassed by any secondary considerations, and of a determined will for accomplishing and preserving the true and dearest interests of the country.

The war has since been regularly brought to a conclusion by the present minister, a gentleman of temper, clear and sound judgment, of most engaging manners, and an acknowledged favourite of the people, from the distinguished part he is well known to have taken in the restoration of peace, so much the object of their wishes; this accomplished Chancellor of the Exchequer sustained an high and important station throughout the whole contest, there his attentions to order were creditable to himself, and beneficial to the state.

* Holland and Flanders had long assented, Italy and the States around subdued, Venice surrendered, Germany had made peace, Spain under the controul of France, Portugal what you please, and Prussia neuter, or rather most inclined to help the French, the Porte, little will of its own; the combination of the Northern Powers joined in support of an armed neutrality. The northern states were soon by spirited exertions on our part brought to reason, and this statement has no relation to the present essay, other, than to shew, that all expectation of a confederacy was given up, and that Britain must in each dispute on the Continent, depend on her own internal resources, and the strength of her own Government, which recurs to the whole drift of this essay, secure plenty for the people.

The country now looks up to Mr. Addington, as I have before observed, as the peace minister, and as peace and plenty naturally go hand in hand, I lay my papers for the production of plenty under his protection.

Time will come, and is not perhaps far distant, according to the present disposition of the European Powers, that, that useful class, the peasantry of the country, will be wanted; their comforts should be attended to, they should be encouraged, kept numerous and healthy, and not treated as some of the fathers of the labouring families have lately been, sent to depend upon a contracted parish alms, drawn out from a most overburthened poors-rate, whilst their children were almost suffered to go begging.

My friend, Soam Jenyns, wrote a very ingenious tract on political, moral, civil, and other evils, I advance this of an overburthened poors-rate, which was one of the evils the state was saddled with, and which the government of the country could not prevent; but certainly, regulations and an attention should be given, that the like do not return again.

Many Noblemen and Gentlemen in different parts of the country are doing much, by building cottages, and other regulations. The industrious married peasantry being the natural support of the state, attempts should be made to bring them to their former habits, a pride to keep them above applying to a parish, but in the greatest distress.

I cannot close this of the peasantry better, than by a quotation from Kent's communication to the Board of Agriculture, to Gentlemen of landed property, page 234, "more real advantages flow from cottages than from any other sources; for, besides the great utility to landed property, they are the greatest support of the state, as being the most prolific cradles of population. Cottagers are the most beneficial race of people; live primitive lives, are more free from vice and debauchery, and are best formed to sustain the hardships of war and other laborious services."

Therefore, as an attempt to prevent all the evils of scarcity learn to increase the peasantry of the country. The land is capable of any exertions the cultivators are disposed to put it to, but we want the people. Place the lower classes of mankind in the line of happiness, from thence they will increase fast enough. These are the proper men to withstand all attempts which may arise from too overgrown a power and influence, by the great extent of country on the Continent having accidentally fallen under one controul.

His Majesty has happily been engaged on an improving system in agriculture at Windsor, on a very large scale, an account of which was presented to the public, in the year 1798, in the 17th Vol. of the transactions of the Society for

the Encouragement of Arts, &c. by Nathaniel Kent, esq. very highly to the honour of his Majesty, as the father and patron of his people, and a liberal promoter of whatever may have a tendency to secure their pleasure and comforts. On these two farms in the great park at Windsor, which his Majesty was graciously pleased to permit Mr. Kent to describe, there are many judicious thoughts brought into good use and practice, which we shall apply when our system is *patronised, and allowed to take place*

Permit me to maintain, that the interest of Britain is, by rational and easy means, to secure regular plenty to all conditions of men, support the dignity of the internal Government, look to the navy, army, home and foreign trade; increase the advantages which may be derived from an improved agriculture, aided by a more extensive breeding of young stock, and may I dare to say, a frugal attention to the public purse, each of these require no slight *attention*, some understanding, and were they duly and properly enforced, Britons would remain the Bulwark of Europe; and as the poet finely expresses it, "withstand the world in arms."

I am, Sir,

The Public's Friend, and most humble servant,

WHEAT & SHEAF.

January 14th, 1803.

ANSWERS TO VARIOUS QUESTIONS PROPOSED BY DR. PARRY.

To the Editor of the Agricultural Magazine.

SIR,

THE best way of convincing Dr. Parry that I have indeed "nothing in view but truth and the public benefit" in what I write on agricultural subjects, will be, probably, to give immediate, direct, and precise answers to the questions which he has proposed to me in the last Number of your Magazine, p. 439. Without noticing, therefore, the little embellishments, in the shape of insinuations, with which he has decorated his list of Queries, I shall keep my attention steadily fixed upon the subject under discussion, and answer briefly to each interrogation. This, perhaps, is strictly the duty of an anonymous Writer.

The first question which Dr. Parry asks, is, "What breeds of sheep they are which I denominate *large sheep*?" To this question I answer that I call the Lincolnshire, the Cotswold, the Romney-Marsh, the Wiltshire, the Somersetshire, and the Dorsetshire breeds large sheep. The Berkshire breed I

scarcely venture to place in the class of large sheep, for, I believe, that the breed of sheep so denominated is generally esteemed a middle sized breed, or a distinctive medium between large and small sheep.

To his second question, namely, "What experiment of the Duke of Bedford's is it that I have alluded to?" Dr. Parry will find an answer, and the particulars of the experiment, related somewhat in detail, in a letter, from your Correspondent T. Weston, inserted in the 5th vol. of your Magazine, page 385.

The third question is, "In what market does he mean to say that mutton fetched last year 9d. per lb. by the quarter; and what was the retail price?" I answer, in the London market, which governs and regulates the price of meat in all the markets, at least in the southern parts of England. And if Dr. Parry will refer to the month of September, 1801, in your Magazine, or to page 221, vol. 5, he will find, that mutton sold at Smithfield Market for 9½d. per lb. in the identical month in which he states his mutton to have been sold at 8d. What the retail price was in London at the time, it is not in my power to say, but any one can tell what it ought then to have been.

To the fourth question, I reply, that the mutton which I have mentioned must have been chiefly wether mutton.

The last question which is proposed to me is this, "What was the certain or probable weight of the sheep which sold in Cheltenham Market for 3*l.* 10*s.* and what was the certain or probable weight of those sheep which he says sold for less than 1*l.* each?"

To the former clause of this interrogation I reply, that the sheep which sold at so high a rate, were estimated by those who were good judges of the weight of this species of stock, at rather more than 24 pounds per quarter. They were more than half fat, were of the old Cotswold breed, and the property of a Mr. Hall, whose farm is not far from Cirencester, a neighbourhood well known, I have reason to suppose, to Dr. Parry: therefore, if I am at all incorrect in this statement, I am exposed to his immediate detection.

The best answer which I can give respecting the other class of sheep, which sold for 1*l.* each, is merely a conjectural one, that the probable weight of them was from six to eight pounds per quarter. They were of the Ryeland, the Forest of Dean, and Welsh breeds, or crosses from those breeds, which are kinds of sheep, the weight of which is much better known to Dr. Parry than to

Your humble Servant,

PRACTICUS.

OBSERVATIONS ON THE PRESENT STATE AND FUTURE
CONSEQUENCE OF THE GRAND JUNCTION CANAL.

To the Editor of the Agricultural Magazine.

SIR,

Having observed accounts of Canals in your very entertaining and useful Magazine, the following observations on the Grand Junction Canal appearing therein, if deemed worth publishing, will much oblige

A CONSTANT READER.

THE Commerce and Manufactures of this island perhaps depend more on the facility of carriage, than many people are willing to allow. The produce of the earth, even the first necessities of life, are but of little value in situations too remote from places of considerable population and consumption, unless some of the late great improvements as to conveyance, give markets to their superabundant produce. The improvement of the public roads during the last century has made a most striking and pleasing change in this island; but the numerous canals that have been begun, and many completed almost in all directions, and nearly all within the last fifty years, and that by private subscription only, would have been matter of perfect astonishment to our more early ancestors. Many of these are entirely the work of the last ten years, and through tracts of country before thought impracticable, and of course very expensive; and also carried on during a war unexampled in extent or expence. No wonder then that some of these, should have proceeded rather slowly; but if those most apt to condemn this dilatoriness, had looked to their extent and avowed objects, that of uniting shore to shore, port to port, in almost every direction, and frequently by the shortest route possible: and that unavoidably mountains must often be perforated, extensive valleys filled up, rivers and roads in abundance crossed, almost numberless locks erected, and the very moisture from the clouds frequently arrested in their progress to the larger vallies, and large reservoirs made on high and not eligible situations for such purposes, where the nature of the country did not abound with well-situated and sufficiently copious springs; they ought rather to admire the progress already made, than charge the undertakers with remissness.

The first attempt at inland-water-conveyance in this country was to navigate the rivers as high up as practicable, with but little assistance from art; but the inconveniences of river navigation, are so many and so evident, as not to require much notice here, though some few reflections on this subject, will be necessary in the course of these observations.

It was most assuredly an object of vast magnitude to plan and to execute the great system of uniting the Thames, Severn, Trent, and Mersey, which the old canals, the Duke of Bridge-

water's, the grand Trunk, the Staffordshire and Worcester-shire, Coventry, and Oxford have done. The imperfection of this route in connecting the metropolis with the northern parts of the kingdom, has given rise to the grand junction.

Also, though Birmingham, Manchester, and many other places had canals communicating with the above-mentioned system of uniting the principal ports, yet the circuitous route has given birth to many of the later, and yet unfinished, canals; as between Liverpool and Hull, to the Rochdale and Huddersfield; between the Mersey and Severn, to the Ellesmere; between Birmingham and Bristol, to the Worcester and Gloucester; besides the many mere local objects each concern particularly embraces. In short, there is scarcely now a manufacturing town, sea port, navigable river, valuable and extensively worked mine, foundry, or coal-pit, but has, or is about to have executed its navigable canal, to join the general system at the nearest and most convenient point.

From their numerous navigable rivers and various canals; Liverpool, Bristol, and Hull, have had the advantage of London, as to facility, dispatch, and reasonableness of distant inland water conveyance, for some years. The grand junction will certainly give the metropolis all the facilities above enumerated; connecting it by almost the shortest possible routes with Liverpool, Manchester, Birmingham, and the other great manufacturing towns of the north and north-west of the kingdom. Also by its many colateral branches already executed, and others equally feasible, perforating in various directions the counties of Northampton, Buckingham, Bedford, Hertford, and Middlesex; and thereby at the same time, furnishing them at a much cheaper rate, with the coals, metals, pottery, salt, and manufactures of the north, as well as all the various manufactured and imported articles of, and from, London: affording to these counties in particular, a double market for the produce of the soil, viz. the metropolis and the northern counties; thereby at once extending manufactures, facilitating commerce, and encouraging agriculture.

May it not be presumed, then, from its situation, that the grand junction may be termed the trunk of the whole system of inland canal navigation in England?

Although all that can here be said, is much better felt and understood, by many more immediately connected with this and similar undertakings; yet, it may be fairly inferred, that the public in general do not see and perceive the advantages of well constructed canals, as much as might be—and that hence, arises the great opposition, that in many instances have been made to them; and the indifference the

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world in general has shewn, except those immediately concerned.

The end and intention of this attempt, is then to excite the attention of the public, to the magnitude and consequence of the undertaking itself; and to endeavour to point out what is lost by unnecessary delay. Perhaps this humble attempt, may rouse the abilities of some who have the opportunity, and enjoy the necessary influence to remedy such defects that at present exist; and to adopt such improvements, which a more public discussion of the subject may point out.

It generally happens in large concerns with limited capitals, that improvement is greatly checked by attempting too much, and finishing or compleating but little. Surely this has been the case with the grand junction, and was the work to be begun again; nobody would advise executing both tunnels, all the very expensive work in Northamptonshire, the very deep cutting near Tring, and the canal from Brentford to Uxbridge, at the same time. The little business done when navigable only from the Thames to Uxbridge, proves that a short line of canal is not capable of drawing business from its accustomed channels: but rather to have completed it by stages from the north, thereby lengthening the canals that already existed, and bringing it by every such stage nearer to London. Although the most expensive and difficult parts were near the north land, yet, the business done as soon as navigable to Blisworth, proves what was to be expected. If, then, the tunnel there had been next executed, the valley over the Ouse filled up, and the canal made navigable to Fenny Stratford, it may be perhaps fair to suppose, as great an income would have arisen as does at present. Also, that every necessary extent of capital, would have been easily raised from the increase of business that approaching every town or road would have produced.

It is intended, to notice some of the very numerous objects on the line of the grand junction canal, with its several collateral branches and communications beginning at the Thames; first venturing a few observations on the present unfinished and imperfect parts, as the Blisworth tunnel, and Railroad, and the Woolverton valley embankment.

Rail Road near Blisworth.

Although the inconvenience of the rail road at Blisworth is common conversation, yet, the utility of it cannot be questioned. It is hoped that every expedient, to cause as little delay as possible, will be used. Might not more persons be employed? Competition mostly proves beneficial to the public. It might secure the utmost care as to damage, as well as prevent unnecessary delay.

As perhaps from 50,000 to 100,000 tons of different articles coming on the canal, this and every succeeding year, till the tunnel is pervious, depends on the security, care, facility, and dispatch to be met with there, a little expence in securing such an increase of business, ought not to be regarded. This circumstance is the more strangely stated, as it has been asserted goods have been longer in getting from the vessel at one end of the rail road into that of the other, than in otherwise passing from London to Braunston. If traders are not tolerably certain of every accommodation and an alluring profit, they will not be very eager to change the plan of doing their business. If every trader would either provide for himself, (or by some means it was done for him,) a person to expedite his own particular business, it surely would be the most certain plan of securing the earliest and most extensive advantages.

Blisworth Tunnel.

Nothing can be of equal consequence with finishing the Blisworth tunnel. It is a great consolation, to know it is engaged to be completed in a given time, by able and substantial undertakers: and still more pleasing are the general reports, that it will be complete much within the limited time. The putting down all the shafts as early as possible, is certainly a very wise step; as every one must allow that nothing but a want of hands and materials, can be a sufficient excuse for not working with spirit, every shaft at the same time; which it is hoped, the utmost care will be taken to prevent.

There are individuals who state the loss of the company, at no less than one thousand pounds per week, independent of the accommodation to the public; but from the great progress already made, the abilities of the engineers engaged, and the confidence they express from the heading, having secured them from being interrupted by waters, as was the case in the former attempt, as well as having ascertained the nature of the ground; the public have the best founded hopes, this loss will not be cause of complaint long.

No one can doubt, but every care will be taken to complete the locks near Stoke, in the mean time.

Woolverton Valley.

That the business on the canal will rapidly increase on attaining the above object cannot be doubted: but that the filling up the valley, and building an aqueduct over the Ouse, near Woolverton, is also undertaken by a number of very respectable gentlemen of that neighbourhood, and who are mostly large proprietors and traders thereon, must be another very consolatory circumstance. This will prove an improvement inferior to nothing along the canal, the passing nine

locks will be saved, no waste of water incurred, one level maintained from Stoke in Northamptonshire, to some miles south of Fenny Stratford, as well as to within a mile of Buckingham. The saving of the lockage is felt by none equal to the traders in point of expedition, unless it is the canal company itself: locks being a continual cause of expence and of delay, while under repair.—It is hoped the public may find this improvement completed, in nearly the same time as the tunnel. Can a trifling allowance be thought a grievance, as an acknowledgement for the expence, which certainly must be very considerable?

The superfluous water here, on such an high above the meadows, may be employed in some very powerful machinery, or for the purpose of irrigation.

The depth of the water in this very long level may be also increased, provided the banks are made proportionably firm; thereby securing an easier and more expeditious navigation.

(*To be continued.*)

ON THE APPLE CROP.

To the Editor of the Agricultural Magazine.

SIR,

THE public are obliged to your Correspondent, Mr. Jones, who has brought his thesis in very well, *of rain preceding frost*, to account for the late extraordinary partial failure of the Apple-crop. Yet that is fully referred to in Mr. Bucknall's paper, where he says, there are many causes for producing blight. Each gentleman, I think, has discussed the business with science, discrimination and knowledge.

Having been a regular observer of the operations of nature in the productions of vegetation for many years, and being now confined to my room by the gout, I sent my servant into the library for the Transactions of the Society of Arts, &c. expecting the different Essays on Blight there presented to the public by Mr. Bucknall will become the elements of orcharding, I had a mind to see how the subject was treated, and it is directly as I expected. Mr. B. seems to fix it upon the alternate quick succession from warmth to cold, and the contrary; this sudden alteration so prepares the branches to receive a more direct impression from the injuring quality than about to attack them, that they are not prepared to resist it. It is not the intense cold or warmth which does the mischief, but when a frosty night is preceded by rain, snow, or sleet, after a warm day, these combined causes greatly tend to check the growth of the tree, and, from the preceding warmth, have more the power to destroy the delicate formation and expan-

sion of an infantine vegetation, and prevent a due impregnation of the blossoms, without which there can be no fruit.

Mr. Daniel applies a very good expression, *iced*, that is in the action of freezing, and this destroys the fecundity of the blossoms also during the operation, when the branches are full of sap, expands the pores of the tree, and injures the organization. To see this circumstance in the true light, it should be remembered the frost did not come on until the 18th of May, when vegetation had made a great advance, and if it had not been from the length of the days the ice would probably have been sufficiently strong for persons to have scated upon the canals.

Now, Sir, I beg you to make my compliments and respects to the Traveller, Mr. Bucknall, Mr. Daniel, and Mr. Jones, desiring my paper may be added to your valuable Publication, and; in this instance, help to record a very severe late frost, which extended, I am inclined to think, nearly over the whole island, and produced much mischief in the potatoes, hay-crops, and, I should suppose, the hop plantations, from that plant being naturally very full of sap.

I am, Sir, your obedient Servant,

OBSERVER.

THE IMPROVEMENT OF DOWN AND OTHER POOR GRASS-LAND.

To the Editor of the Agricultural Magazine.

SIR,

I HAVE of late been taught a method of improving poor Down-Land, which I have adopted to great advantage, and which I wish to make known to other Farmers, who occupy this species of land. I have plowed up several patches of this kind of land, and have laid them down again, without taking a crop of corn from them, with abundant profit! My process has been the following:—

I have breast-plowed, and burnt such parts as I found would afford sward enough to produce a tolerable quantity of ashes. After having spread these ashes on the surface, I have turned it up by a shallow furrow, and then have sown turnips, in the usual way. These turnips I have caused to be eaten upon the land, with as much regularity as if I had intended that they should have been succeeded by a crop of corn. But instead of sowing corn, I have repeated the turnip crop, in which I have been very successful in this precarious species of crop, for it seems that this mode of management is peculiarly encouraging to the turnip plant. Thus I have obtained two very valuable crops of winter food, from land almost unproductive, and in the spring following, as soon as the land has been in

order for sowing, I have, after once plowing, given it a moderate quantity of rye grass and clover seed, with an addition of about four pounds per acre of all kinds of seed which I found in the hay-loft.

The produce of this sowing, however, although it has in every instance proved luxuriant, I have not given up as pasture to my sheep, in the first year, before the month of August, and then generally only to my lambs, fearing lest the tender plants should be torn up by the roots, and the future turf irreparably injured. In the early part of the spring following, and throughout the whole of the second year, it is truly astonishing to see the quantity of stock which is supported by this land. But when I view this multiplied produce in a comparative view with what it bore before, I do not hesitate to recommend the practice in every possibility of adoption, not only on down-land, but on all kinds of poor green-land.

This improvement has likewise permanency to recommend it, and from what I have seen of it in the practice of a few of my neighbours, I am induced to think, a new herbage thus formed and encouraged, will never completely return to its former state of sterility. The only objection which I can discover possible to be made to this attempt at improvement, is the expence of preparing and planting the land: but this expence will, in most instances, be abundantly repaid by crops of turnips alone.

I am your humble Servant,

Dec. 23, 1802.

A HILL FARMER.

ON CHEESE-MAKING.

To the Editor of the Agricultural Magazine.

SIR,

I WAS very much surprized at seeing in your Magazine, for November, page 335, Mr. Thomas Andrew Knight declare so positively, "I do not know any article more affected by the pasture than cheese, both in quantity and quality," and at the end of that same sentence add, "I have no reason to suppose the quality of the cheese, or its quantity, depended on the kind of plants."

How will he reconcile this glaring contradiction?

I consider cheese-making as a mere manufactory, and according to the different modes of making, different cheeses are produced. This doctrine I know from experience to be perfectly true, for I have proved it. I keep a large dairy of cows all the summer in the house, and fed plentifully on vetch, or clover. In the evenings they run in an adjoining close to the homestead; and from these cows I make every sort of cheese, from Stilton to Cheshire, Cheddar, &c. &c. My dairy-woman likes experiments, and has succeeded in every sort of

cheese she has undertaken. The butter is excellent both fresh or salted; but little butter is made, except from the skim milk, as I find cheese-making more profitable. Now I offer this proof, that as all the different sorts of cheese are made from the same vegetable, there cannot be a doubt but that cheese is not any way affected by pasture, provided it be wholesome, but that it solely depends on the manufacturer to produce any sort he pleases. Mr. Knight only notices the Sussex or Devon cattle, as entering into competition with the Herefordshire. There is another breed that I suppose he is ignorant of, I mean the Pembrokeshire blacks, which, if butchers, or those who work cattle, may be credited, is at least equal to those he has mentioned. I beg your pardon for troubling you, but I wish every thing relative to Agriculture to rest on fact alone, and not on theory.

I am your obedient Servant,

VERAX.

ON CHALK AS A MANURE.

To the Editor of the Agricultural Magazine.

SIR,

NOT enjoying a good state of health in London, I was induced, a few years ago, to turn my thoughts to rural affairs, and having heard much said upon the subject of agriculture, as the most salubrious, and, at the same time, the most profitable of employments, I determined upon purchasing an estate in the country, and of becoming not only a proprietor of land, but the cultivator of it likewise. And having discovered, by what I had read, and by conversation with practical men, that no improvements of magnitude or profit were to be effected without a large and constant supply of some substance wherewith to renovate the strength of land exhausted by repeated culture, I determined to purchase not only such land, as was poor in itself, but which contained beneath its surface either marle, or chalk, or lime: all which substances I conceived had hitherto been used too sparingly, and had been confined to particular soils, as enriching only to such. Accordingly, upon the first opportunity, I bought an estate in Sussex, which included a small portion of a chalk hill, and began my operations, in a great measure at first in conformity with the general system of the neighbourhood, but with rather a more free use of the chalk, as a dressing or manure. My first year ended; however, I was emboldened to make a few advances in experiments, in which I was very successful.

I had read, in different authors, that chalk was profitable only as a dressing upon clay land, and on that land only as *arable*. I had read likewise that chalk was carried into Essex from the hills in Kent, and was an excellent manure in the

former county, but of no use on the clays, or on the sands of Kent; that it lasted only for a certain number of years, and then left the land in a worse state than that in which it found it; that chalk always made a rich tenant but a poor landlord; and that no one ever thought of using it as a dressing for grass land.

The verity of the above opinions I was desirous of proving by experiment, and upon trial I found each of them erroneous. And the misconceptions, I think, which are prevalent respecting the efficacy of chalk as a manure, have originated in a too sparing use of it, and from spreading it upon land in a state of tillage, and immediately ploughing it in, rather than laying it upon green sward, and suffering it there to remain exposed to the influence of the air and frost, and till it has sunk into, and becomes thus incorporated with, the surface soil. For I apprehend that there is great danger, when chalk is intermixed with soil, especially with a light soil, by means of the plough, of its soon sinking too low to afford much benefit to the land.

Having received great advantage from chalking my clay land, I then proceeded to use it on a gravelly soil, with a similar effect; and then on a poor hungry black sand, and the benefit was astonishingly great, for in this instance the land, which was before worth not more than half a crown an acre, is now, worth more than thirty shillings, as pasture ground, for I have not yet broken this land up. Upon this sandy land, instead of twenty tons of chalk, which is a common quantity in use, I ventured to spread thirty tons per acre, and have thereby, apparently, completely changed the nature of the land, its herbage is now plentiful, and is eaten by cattle with great avidity, which I esteem a proof of its sweetness and richness.

If chalk tends to make mellow, and to relax the stiffness or cohesion of clayey soils, I have discovered, that on a sandy earth, it gives tenacity or staple to this species of land, without which a sandy soil is very uncertain in its productions.

I usually cart the chalk upon my land, as opportunity serves, towards the end of summer, and never touch it, after the spreading, till the frost has minutely separated its parts: in the spring I run a harrow over it, which levels the surface, and the grass soon finds its way through it, and I observe that the grass becomes then of a darker colour than it was prior to the using of the chalk.

I have read in an old Magazine the opinion of a Writer on Agriculture respecting the nature of chalk, with which I cannot perfectly coincide, and yet scarcely dare venture to contradict. "I imagine," says he, "the advantage of chalk to proceed, not so much from its being a manure, as from alter-

ing the nature of the soil; for I do not consider chalk as possessing within itself any vegetative power, being rather a *medicine* than a food." This is certainly a consideration of some moment to the curious in causes and effects; but as a husbandman, I find it safest to proceed upon the evidence of facts. I find that chalk *improves* my land, and that too with a continuance, and whether it effects this by restoring to the land latent powers, or really gives fresh nourishment to it, I leave to others to investigate. And am, till another opportunity presents itself of renewing the subject,

Your humble Servant,

W. W.

ON THE LATE SMITHFIELD EXHIBITION.

To the Editor of the Agricultural Magazine.

SIR,

IN your Commercial and Agricultural Magazine, of the 1st of this month, there is a very insidious, as well as erroneous, account of the late Smithfield exhibition, in which what the writer (who signs himself T. Weston, Piccadilly,) calls *delays and blunders*, "appeared to fall on the shoulders of Mr. Arthur Young."

Had the writer known any thing of the subject, upon which he so ignorantly accuses the Secretary of the Society, he would have informed his readers that Mr. Arthur Young had nothing to do with the exhibition, the fixing the time, delaying, or blundering. Two stewards were appointed to superintend the business of the exhibition, one of whom being out of town, the other acted for him at his request. The only error or blunder that I heard of was fixing the day of exhibition a week too soon; but that was done by the steward resident in London, in a circular letter to all the members of the club, and, as I have been informed, against the opinion of Mr. Young, but not at all without authority, as that was delegated to the stewards by resolution long before. This plain statement ought to convince Mr. Weston of the manifest injustice of the hearsay information he is so ready to detail, and ought to make him a little more cautious before he publicly accuses others, in points upon which he shews himself to be completely ignorant.

I am, Sir,

Your most obedient Servant,

A SUBSCRIBER TO THE CLUB.

London,
Jan. 13, 1803.

HINTS ON THE CULTIVATION OF CHALKY, SANDY, AND GRAVELLY SOILS.

Chalky Soils.

SOILS of the chalky or calcareous kind, occupy very extensive Tracts of land in different parts of the kingdom, and are marked with considerable diversity, as proceeding from the nature, properties, and proportions of the calcareous matter, as it exists in them; the substances that are mixed and combined with it; the depth and qualities of the earthy stratum which is placed upon it, and the disposition of the subsoil, or basis, on which this is formed and deposited.

Calcareous matter is contained in many different stony substances besides that of chalk, as marble, limestone, coral, and shells of different kinds; and in states of union with other materials, such as sand, the different simple earthy bodies, in different proportions, and in some instances with iron and magnesia. Its capability or powers of imbibing and retaining moisture is considerable, though not so great as that of clay; it burns to lime by proper degrees of heat, and absorbs fixed air in different proportions from the atmosphere, and returns again to the state of chalk or effete calcareous matter. It is found of very different degrees of hardness and friability, as well as of different states of fineness or pulverisation, in different soils of the class to which it belongs. It has long been known to the practical agriculturist, that some sorts of lime may be employed in large proportions while others cannot be used, except in very small quantities, without doing very considerable injury to the soil with which they are incorporated. The long unexplored cause of this diversity of effect in different limes, seems lately to have been placed in a more clear and satisfactory point of view, by the experimental attempts of that ingenious philosopher, Tennant. He has found by repeated experiments, that the sort of lime which is the most friendly to vegetation consists entirely of calcareous earth, and quickly absorbs a large portion of fixed air from the atmosphere, while that which is injurious and unfriendly to the growth of plants, contains only three parts of pure calcareous earth, the other two consisting of magnesia, and that it absorbs comparatively, but an extremely small portion of fixed air from the surrounding atmosphere. This kind or mixture of calcareous matter, was also ascertained to be very slow in acquiring the power of supporting vegetation, even after it had been converted into lime; and remained for a considerable length of time in the state of mortar. The limestone in which there is a mixture of magnesia is also much harder, and dissolves considerably more slowly in acids, than that which is purely calcareous. The same author likewise

supposes, that the christallized structure commonly observed in the magnesian limestone, indicates, that it has been formed by the accidental conjunction of the two earths, but constituted by their chemical union. The difficulty with which it is dissolved by means of acids, may also, he thinks, in some measure, depend on the attraction of its different component particles to each other. This sort of limestone seems to abound in different parts of the kingdom.

The practical distinctions of hot and mild limes, which have frequently been made by those engaged in the improvement of soils, and which have been particularly attended to by Mr. Fenwick, in his essay on calcareous manures, prove that the magnesian calcareous matter is met with in the northern counties: that which is considered as hot, being also found by him to be more difficult of solution in acids. These important and interesting facts, not only shew that whatever sameness there may be in the nature of calcareous matter, when in its pure and unadulterated state, that as met with in soils, and different substances of the calcareous kinds; it has considerable diversity, and when in union with magnesia, it is in an high degree prejudicial to the growth of vegetables.

Calcareous matter, whether it be in the effete state, or in the more active one of causticity as quicklime, seems ultimately to promote the resolution and destruction of vegetable and animal substances; in the latter state however, it acts with much greater violence on these materials, destroying their organization, and dissipating their principles more quickly, as well as robbing them more completely of the fixed air, which is so essential; while in the former, it operates with great mildness, and only aids the resolution of these substances, by gently promoting the process of putrefaction.

The proportions of clayey, loamy, and gravelly ingredients, which are conjoined with the calcareous matters of these soils, are various in different districts; where the argillaceous and loamy materials are comparatively in large quantities, soils of the heavier chalky kinds are formed, and where the sandy or gravelly are predominant, we have the lighter ones. There are also material differences proceeding from the earthy matter, with which the calcareous ingredient is mixed in the state of soil. Where the quantity of this is small, and not reduced into a very perfect state of mould, the soil, as is evident, must be poor and thin; but where the depth of this superficial stratum is considerable, and the animal vegetable and other substances of which it is composed, is advanced to a more complete stage of decomposition and decay, the soils are more rich and heavy. Some variety is likewise caused, by the state of the under stratum, or subsoil. If it be compact, and much intermixed with silicious or flinty matter, or have a

mortary hardness, it is less favourable than where it is of a more open brittle or powdery texture

From what has been stated, the means of improving chalky or calcareous soils must be evident. As the calcareous principle is here abundant, the principal intention is the alteration of their textures, and the supplying of vegetable matter. This is effected in the heavier sorts of chalky soils, by the application of clayey and sandy loams, according to the particular circumstances of the cases; and in the thinner and more light limestone soils, it may be accomplished by means of clay, argillaceous marl, and the rich, imperfectly, decomposed, vegetable matter, arising from the deposition and accumulation of such substances, in low, close, and wet situations.

Farm yard dung, and composts of all kinds of dung, with good mould, will be advantageous. Soot and malt-dust have likewise, in different instances been successfully employed.

Where the mischief has been experienced from the two great abundance and prevalence of magnesian lime, the plentiful use of ashes produced from the combustion of fresh vegetable substances, would seem to be the most suitable application as a remedy.

Whatever appearance of lightness there may be in chalky soils, they require considerable strength in the team, where the staple, or earthy stratum of the lands, will admit of their being wrought to a tolerable depth; but where there is a thinner surface of earthy materials, less force of draught will be requisite. In the latter cases, the soil is however far more precarious and uncertain, as well as much less productive in respect to the crops that are cultivated upon it, than the former. As chalky soils are not so liable to be injured by water as others, the business of tillage is much less impeded from that cause; but a dry season sometimes renders them so hard, as to be totally incapable of being broken up, until they have been moistened by a considerable fall of rain. From the great wear by friction and other causes, that takes place in the ploughing and breaking up of most soils of this class, the state of the irons of the ploughs, or such other instruments as are employed, must be more frequently and particularly attended to, as from the neglect of this circumstance, much inconvenience, as well as loss, may arise to the Farmer.

Sandy Soils.

Sands seem to have been gradually formed, by the attrition and rubbing down of various solid substances that are found in nature, especially such as are of the silicious, calcareous, and stony kinds, and are of different degrees of fineness as they approach the size of gravel. They are also met with of various colours and appearances, in different

tracts of country, such as white, dusky, brown, yellow, and red. These differences as well as those which respect their weight, tenacity, and other properties, depend on the nature and proportions in which many other sorts of materials enter into combination with them.

Where the proportions of clayey, loamy, or other earthy substances with which they are mixed approach nearly to that of sand, the heavier sorts of sandy soils are formed, but where these enter only in small quantities, we have the light sandy soils: and where they are hardly met with at all, the soil is a loose blowing sand, most commonly of a white or brownish appearance. The portions of vegetable matters that are intermixed with different soils of the sandy kind, are not less various than those of the clayey and loamy, from which considerable differences of quality are produced. These differences in their textures and compositions also introduce others, which respect their powers of admitting and retaining heat and moisture. The openness and want of adherence in such soils, while they allow of the admission of heat and water more readily, permit them to be carried off with greater ease and expedition, they are therefore less permanently benefited by their influence, than many of the closer and more adhesive soils.

From this view of the constituent principles of sandy soils, it is obvious that they are chiefly deficient in the calcareous, argillaceous, loamy, and vegetable ingredients. The intention of the agriculturist should therefore for the most part be directed to the augmentation of their cohesive property,* and

* Mr. Josiah Redwell, of Livermere, near Bury, Suffolk, in his communication to the Board of Agriculture, particularly calls the notice of the Board to the wonderful effect of digging and spreading marle and clay upon poor sandy heaths. As a proof of the good effects of this husbandry, he relates, that the farm on which he has been working, consists of 1400 acres, 700 of which were of this sort of heath, producing fern and gorse, but chiefly ling, being originally of small value, at best yielding but a scanty support to ill fed sheep. It had been occupied by his predecessor, Mr. Garnham, for 36 years, at the rent of 140*l.* and never more than 150*l.*, the landlord (Bapt. Lee, Esq;) paying tithe, nor did Mr. Garnham, at that rent, do much more than make a living on it. In 1771 it was valued far raising the rent, and 350*l.* a year demanded, not tithe free, at which rent Mr. Garnham refused it, as did several other Farmers, who examined the land; and when he engaged at that rent, he was pronounced a ruined man by most of his acquaintance who knew the farm. He had a lease of 13 years.

His operations at first were to inclose with thorn hedges, marle, or clay, and break up 300 acres of the heath; and in the first seven years of the lease, he finished what he meant to improve in that term: he marled or clayed 600 acres, at 70 loads an acre, being 42,000 large tumbril loads.

In the 11th year of his lease he applied to his landlord for a renewal, on which the farm was valued again, and he took a fresh lease of 15 years, to commence at the termination of his old one, at the rent of 400*l.*

He immediately clayed and broke up 200 acres more, at 100 loads an acre, 40 bushels per load, inclosing all with quick hedges; after this he improved 100 acres more in the same manner.

the supply of the calcareous and decayed animal and vegetable matters. With a view to the first, argillaceous and loamy materials may be had recourse to, and it has been observed by Fordyce, in his *Elements of Agriculture*, that a less proportion of clay is required in the improvement of light sandy soils, than of sand in clayey ones; but whether this rule be generally correct or not, some of the thinner and poorer sorts of sandy soils, certainly demand large proportions of the argillaceous ingredients. Where the calcareous principle is in sufficient abundance, argillaceous, marle, and clayey loams, are the most suitable; but where it is deficient, calcareous marles and loams will be more advantageously employed.

The defect of vegetable matter in these soils may be remedied by the use of farm-yard and other composts, proceed-

In the two leases of 28 years he clayed or marled 820 acres; and he has clayed or marled so much over the second time, at 70 loads an acre, that the quantity carried in all was little short of 140,000 loads.

He asserts, from attentive observations, founded on positive experiment, that clay is much to be preferred to marle on these sandy soils, some of which are loose, poor, and even a black sand. By clay is to be understood a grey clayey loam, some of it brick-earth. Marle is a white, greasy, chalky substance, that effervesces strongly with acids. He makes an universal rule, on a second improvement, to lay clay on fields marled before, sometimes marle, where clay was spread before; but this was not general, as clay answered best on the whole.

His crops, by managing attentively, have been good; he has had 11½ coombs of barley an acre, and even 14, and these over large fields; he has also had seven coombs an acre of peas over six score acres, and fine wheat after them.

On 90 acres clay ed 100 loads an acre, he has had, after two crops, the one turnips, the other barley, cole-seed, and sold it on the ground for 1000 guineas; then turnips, a famous crop, followed by barley, on 75 acres, 16 coombs an acre; and by oats, on 15 acres (poorer land) 20 coombs an acre.

In regard to other manures his farm has had the fold of from 40 to 48 score sheep, they manure, one year with another, 150 acres, and he is never without bullocks for increasing the farm-yard dung. He top folds wheat from the beginning of November till Christmas, and even till February. Of all muckings, that for turnips pays him best; particularly on clayed land. Many Farmers in Norfolk prefer laying it on for wheat, the turnips to have it at second hand, but he prefers the other method.

Having thus stated shortly the general management of his improvements, he now comes to the general result, rent will speak this. It is stated that 28 years ago, the rent of the farm was 150l. a year, tithe free, and that it was then raised to 350l. a year, tithe payable. He ventures to assert, that at that rent, without improvement, it might so have stood on his landlord's rent roll till Doomsday, for a mere living could be made on it, even in good time. But upon his taking the third lease, it was raised to 600l. a year, at the same time to the full value of 100l. a year was taken from it, in other words the present rent is 700l. a year. He has thus added (besides bettering himself in the world) 350l. a year to the value of the estate, and 1400 acres have, in the last 28 years, yielded 30,000l. more of corn, meat and wool, than they did the 28 preceding. Here is an example of good farming, worthy the emulation of every Agriculturist. E.

ing from animal and vegetable substances in a state of putrefaction. But good earth or mould, and the imperfectly resolved matter found in boggy situations, may also, in many instances where these cannot be easily procured, supply the deficiency in a very beneficial manner.

The folding of sheep upon soils of this nature likewise contributes greatly to their improvement, not only by the quantity of dung and urine that is deposited upon them, but the consolidation and firmness of texture that is produced by their treading.

All these different sorts of materials may be applied either alone or combined with one another, in the state of composts. The marles and clayey substances are, however, for the most part, laid on in the states in which they are found.

The light, open, and porous texture of sandy soils render them much more easily cultivated, and kept in order, than those of the strong and close kinds; consequently where they prevail, the farms are generally large; and when properly prepared they are better adapted for the growth of many sorts of crops, such as those of the bulbous and tap rooted sorts. They have also another advantage, that of pushing forward the crops with more expedition. Whatever inconveniences attend them, as mostly such as proceed from the want of a sufficient degree of cohesion among their constituent particles and solidity of texture. On these accounts they often counteract the best and most judicious management. The roots of the crops are liable to become naked and exposed, from storms and various other causes; and if grain, to fall down and be lodged so early in the season as to render them of little value.

Gravelly Soils.

In the state of gravels which contribute to the formation of this class of soils, there is a variation of size in the pieces or particles of which they are composed, from that of a very small pea to the largest cockle. Where they become of still larger dimensions, they are termed stones or rocks, according as they are in small portions or large masses, and the soils are then said to be stony or rocky, as the circumstances of the different cases may happen to be.

The beds of gravel, whether they be of the larger or smaller kinds, are mostly either of the silicious or flinty nature, or of the calcareous or chalky; but the stones and rocks are of very different kinds. With these dissimilar substances, some others in different states of reduction and pulverisation, are blended and united in various proportions, so as to constitute gravelly soils that differ considerably in their textures and other properties, the chief of these are loams, and the mould or earthy

matter formed by the destruction and decay of numerous animal and vegetable substances.

The gravelly mixture is sometimes also found to approach nearly to the surface, while at others it recedes considerably from it, in some instances springs rise immediately underneath, in others they are at a great depth. The bottom, or subsoil, is likewise various; in some cases it is stony and rocky, in others it is clayey, or a rocky gravel, and sometimes sand, &c.

The open porous nature of gravelly soils disposes them to admit moisture very readily, as well as to part with it, with equal facility; from the latter of which circumstances they are subject to burn, as it is termed, in dry seasons, which is not the case in the heavier or more retentive sort of soils.

The defects in the constitution of gravelly soils may be removed by the applications of one or more sorts of marle where they can be procured. Where the gravel is of the calcarious kind, clay or clayey loam, may be most properly made use of, and a mixture of lime in its effete state, and clay would seem to admit of a general application to these soils. Chalk, as being of the same nature, may also be made use of in the same way. Indeed for these kinds of gravel, which from their contiguity to the springs, are apt to lie wet in the winter, there is no manure more properly adopted than chalk; which although it does not abound with vegetable matters in any large proportion, like yard dung, is however an excellent preparative for them, and will, in some measure, supply the place of such substances. From its absorbent nature it is of good effect not only to counteract the superabundant moisture of such soils, but to lessen their heat; by which means the disposition to burn in summer, so inimical to the growth to various crops, and to which all gravels are in some degree liable, is prevented; and in this last view, chalk, though particularly adapted to those of the wet and spongy kind, may be applied with success on gravels of almost every denomination.

The deficiency of the vegetable and animal earthy matters, where it exists, may be properly supplied by dung of the farm yard kind, in its more rotten state, and various animal excrements. These are frequently applied to the gravelly soils, with the greatest effect and advantage, in the form of composts with good loamy mould, ashes, the mucilaginous and clayey depositions of rivers and ponds, and other substances of a similar kind.

H. N.

ON THE DRAINING OF BOGGY LAND.

To the Editor of the Agricultural Magazine.

SIR,

I HAVE lately received a scrap of intelligence which I presume to think ought to be in the possession of the generality of your readers, but particularly of Mr. Potts, who has well considered the subject of draining boggy land, and who has frequently favoured us with very valuable information on this subject.

I am told by Mr. Smith, who has been of late much engaged at Woburn, in draining land of the above nature, which Mr. Elkinton had before drained ineffectually, that peat or boggy earth when cut out in about the size of a brick, and exposed to the heat of the sun for a few months, will obtain a degree of hardness which it will retain for many years, although placed in the most wet situations. If this be so, (and Mr. Smith informs me that he has frequently used these pieces of hardened peat in the place of bricks in draining,) what a saving must the use of these be in a large undertaking.

Mr. Smith likewise says, that he has floated nine acres, for the Duke of Bedford, of the lower part of a bog, with admirable effect, with the water which he has drawn from the higher part.

I am yours,

Dec. 23, 1802.

P. DAVIS.

ON THE CULTURE OF THE TURNIP AND THE POTATOE CROPS.

To the Editor of the Agricultural Magazine.

SIR,

I FEEL myself under no small obligation to your Correspondent Agricola Norfolciensis, for the minute and clear description which he has kindly given us, in your last Number, of the Hertfordshire machine, used in the drilling of turnips. But still a drawing of the machine might be of singular use to some individuals who might wish to convey a satisfactory idea of it to an artificer to work by.

The two reasons given by this Correspondent, in his note, have been almost sufficiently cogent to remove from my mind a large portion of prejudice which I have long entertained against the drill husbandry; that is, as far as relates to the raising of the turnip crop. The getting rid of wetness in some situations, and the increasing of the quantity or depth of the mould, in others, are objects of the first consequence, to the growth and preservation of the turnip plant. For

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although the turnip requires great depth of soil to receive its tap root, and a large circumference for the accommodation of its extremely long, fine fibres, which issue from different parts of its substance, in quest of its moist sustenance, yet it can very ill bear a glut of moisture. The planting, therefore, of this root upon ridges, appears to me to give extraordinary encouragement to this most valuable species of winter food.

Another equally valuable kind of vegetable is likewise favoured with the attention of your Norfolk Correspondent, and he has certainly applied to the best source of information respecting the culture of the potatoe.

Having read, and seen a few years back, pretty much of the management of the potatoe crop and its application, in the counties of Lancaster and Chester, I shall beg permission to relate what I know on the subject, by way of answer to the enquiries of your excellent Correspondent. I may thereby, at least, stimulate some other writer to give your readers information of a later date.

The inhabitants of these two counties plant a great variety of potatoes, and have, as he observes, a "regular succession of them as food peculiarly in season, each month in the year." The first sort in use is the dwarf potatoe; this is extremely early, excellently well-flavoured, and dry, but is small, and not very productive. This potatoe is frequently brought to the table in the beginning of the month of June, from common ground. This species, with the two kidney potatoes, the white and the red, are the chief sorts which are planted for very early consumption, and considerable art is frequently used to hasten their production. A few particulars of the methods adopted for this purpose, by the gardeners and planters of this vegetable, in the vicinity of Liverpool, are well stated in Mr. Holt's Survey of the County of Lancaster, which I shall here insert.

"Upon the same ground," says he, "from which a crop has already been taken, the early seed potatoes are in some places afterwards planted, and which after being got up, about November, are immediately cut into sets, and preserved in oat shells, or in saw dust, where they remain till March, when they are, after having taken off one sprit or shoot, planted with another, of a length sufficient to appear above ground in the space of a week.

"But the most approved method is, to cut the sets, and place them on a room floor, where a strong current of air can be introduced at pleasure, and the sets laid thin, viz. about two lays in depth, and covered with oat shells or saw dust, two inches thick: this screens them from the winter frosts, and keeps them moderately warm, which causes them to ve-

getate; but at the same time admits air to strengthen them, and to harden their shoots, which is occasionally increased by opening the doors and windows on every opportunity of mild soft weather: they frequently examine them, and when the shoots are an inch and a half long, they carefully remove one half of their covering with a wooden rake, or with the hands, taking care not to disturb or break the shoots: in this manner they remain till the planting season, giving them all the air possible by the doors or windows, when it can be done with safety from the frost. By this method, the shoots become green at the top, the leaves are sprung, and moderately hardy. They plant them then, in rows, in the usual method, with a setting stick, and by this method they are enabled to bear a little frost without injury."

By such preparations as these, the common gardeners have been known in Lancashire to raise three, and sometimes even four crops, of the early white kidney, on the same ground in one year, having sets from the repository ready to put in as soon as the others were taken up.

Another sort of potatoe, which has been generally planted to succeed the kidney's, is what is called the manly potatoe, from a person of that name, who raised it from seed; an excellent root in flavour, round, white, and mealy, but this species is become very scarce, by the effects of the curl or blight. This potatoe is often planted in a warm and sandy soil, as early as the last week in March: but in general, this and the pink-eye are set towards the beginning of April, and are in general fit to be dug up towards the beginning of July. Next after these comes what is called the Perrin's potatoe, and then the Ox-noble, and the Champion, well known throughout England, and afterwards the winter-red, and the winter-white potatoe, which have been long well known, highly esteemed, and very extensively cultivated in the above named counties: then after these, several newly introduced varieties of red, and partially red potatoes: and last of all, but the best in flavour in the spring, the red potatoe called the Dublin-apple. This sort, although a bad potatoe for *crop*, and for requiring better land than many other sorts, is very much grown on account of its being so admirably in season, late in the spring, and even in the summer, when other potatoes are apt to be in a vegetating state, and are become unpleasant, or unfit for food. *Mealiness* is in the above counties, as perhaps it is in most parts of the kingdom where this vegetable is in common use, an *essential* quality in a good potatoe. And the sandy soils of these counties, are very well calculated to give to the potatoes this farinaceous dryness. And indeed, as far as I have seen the land in the county of Norfolk, it appears to me to be of a similar nature to that of the above named parts of

the kingdom, and well adapted to the production of crops of this vegetable, which may excell both in quality and quantity, were the best sorts used, and the best method of planting adopted.

For the best method of planting, I must beg leave to refer your Correspondent to the fourth Vol. of your Magazine, page 75, where he will find all the particulars of the best process accurately given, by a writer who appears to be what his signature expresses, a practical man.

The times of planting the various sorts of potatoes, in the order in which I have mentioned them, depend in a great measure upon the temperature of the season; but the process seldom commences before the beginning of April, and should not be practised later than the end of May. Those species which are intended for food for cattle, such as the ox-noble, the champion, &c. are usually placed in the ground about the first week in May, which is esteemed the time most favourable to the *crop* or quantity.

Your Correspondent hints that he wishes for information respecting the *eating* of this vegetable: and I will venture to assure him, whatever the people in Ireland may say to the contrary, that it is impossible that a potatoe can be eaten in *perfection*, that has not had the eyes carefully pared out, and the skin scraped off, prior to its being boiled: for if the eyes and the skin are boiled in the same water with the potatoe, it will contract, in a certain degree, a strong nauseous flavour to which the potatoe of one, who has eaten this root dressed in the common method of the two counties just mentioned, will never be reconciled.

I am yours,

A TRAVELLER.

ON THE IMPROVEMENTS IN AGRICULTURE, THAT HAVE BEEN SUCCESSFULLY INTRODUCED INTO THIS KINGDOM WITHIN THE LAST FIFTY YEARS, COMMUNICATED TO THE BATH AND WEST OF ENGLAND AGRICULTURAL SOCIETY, BY THE LATE JOHN WIMPEY, ESQ. OF NORTH BOCKHAMPTON.

Extracted from the Papers of the Bath Society.

BY improvements in agriculture, I understand such an artificial management in the culture of land, as may increase the value of its produce, *more* than in proportion to the expence which has been incurred in producing such increase; or, in other words, improvements consist of, and are, estimated by the increase of nett profits, or gain, acquired by means of art, and superior management used in the cultivation of land.

The means of such improvements, I conceive, may be fitly classed, or arranged, under the following general heads, viz.

1. Improvements in the art of tillage,
2. In the invention of new implements, or improvements of those in use before.
3. In the quantity of seed most proper to be sown, and in the regular distribution of the same, both as to distance and depth.
4. In suiting the crop to the nature and condition of the soil.
5. In the rotation, or most beneficial succession of the crops.
6. In manures, natural and artificial.
7. In the successful introduction of many new articles into field culture.
8. In the advantages of applying them to the rearing and fattening of cattle, &c. &c.

Of Improvements in the Art of Tillage.

Tillage consists in breaking, crumbling, and pulverizing the soil. Improvements which have been made in tillage, are of very great importance, as it may truly be said to have been the basis, or real foundation, on which the successful introduction of all the new articles of field culture depend; as will clearly appear hereafter, when we treat particularly of those articles. When the ground is well tilled it is in the most perfect condition for receiving the fertilizing principles of the atmosphere. Rain, snow, hail, dews, and hoar frosts, convey the nutriment of vegetation, which floats in the air most plentifully, into the bosom of the earth, as deep as it has been broken and well pulverized; which it imbibes very freely, and incorporates thoroughly therewith. It is the only effectual means of destroying weeds, so necessary to the beneficial growth of all crops, and should be repeated till they are, in a great measure destroyed; which, by being continually exposed to the sun and wind, will be much sooner than can be effected by any other means. The destroying of weeds, however, is not the only immediate benefit accruing from a due state of tillage: grubs, beetles, worms, and maggots of many different kinds, which abound in many fields, may be greatly diminished, if not entirely extirpated, and destroyed, by the well-timed use of the plough, and its auxiliary instruments, necessary to the reduction and due pulverization of the soil. Nothing so effectually prevents the ravages of the several tribes of subterraneous insects, as the frequent stirring and crumbling the ground.

The improvement the soil acquires by means of frequent and well-timed tillage, is gradual and progressive, and the longer it is kept in tillage, if duly performed, the more fertile

it becomes. One ploughing in the beginning of winter, and a second in the Winter, or early in the spring, will be more effectual in pulverizing and fertilizing the soil, than half a dozen at any other time of the year.

Of the Invention of new Implements of Husbandry, or Improvements in the old.

This article comprehends Ploughs of every denomination, drags, harrows, horse and hand hoes, machines and implements which have been invented to perform the several operations of husbandry in a more perfect manner, and with less trouble and expence.

In former times ploughs were very ill constructed; some little more than scratched the ground, others were made so heavy and clumsy as to require great strength to work them; less than four horses could do nothing with them. There are now several in use which perform much better, viz.—the *Rotheram*, or patent plough, the *one wheeled plough*, and the *Norfolk plough*; which, I believe, is the last, and, it is said, by much the best in use; as it will plough up strong land with two horses only, a man, and no driver; so that it does as much work, and quite as well, as the heavy two wheeled plough, which requires four horses, a man, and a driver; being double the expence of the Norfolk plough, for the same quantity of work.

There is another plough in use, which, it is said, does twice the work of this in the same time, at a little more expence; that is the *double plough*, which ploughs two furrows in the same time any other does one. There are others of a more modern invention, used for particular purposes, of which that with two mould boards is a valuable invention. With this plough I make the open furrows for planting potatoes, and then compleatly cover the sets, by splitting the ridges; when they have been horse-hoed, it again splits the ridges in the intervals, and earths up the plants.

There are other ploughs of less general use, such as the trenching plough, and a small light plough, for ploughing the intervals of drilled crops; which may either be in the form of the Rotheram plough, or the one-wheeled plough either of which would answer the purpose as effectually as any horse hoe whatever.

Of the quantity of Seed most proper to be sown, and on the regular Distribution of the same, both as to Distance and Depth.

The improvement made by the great saving of seed in modern practice is very great. It is very certain, from experiments most satisfactorily authenticated, that about one-third

of the seed which was formerly used, and indeed is still in most places, is fully sufficient. In general it produces a better crop than the whole quantity. In the old husbandry, or broadcast method of sowing, it is usual to allow from two to three bushels of seed wheat, as the season happens, to a statute acre; but in drilling, or setting, as practised in the eastern counties, it is found that from three to five pecks are quite sufficient; so that the difference between the two modes of planting, amounts, at least, to a saving of one bushel and a half per acre. If, then, these new modes of planting all sorts of grain were equally adopted, the saving, I conceive, would be, in addition to the year's produce, a tenth or twelfth of its whole amount. The farmer, therefore, who in any one year might plant one hundred acres of wheat, in the new method, would save, at least, one hundred and fifty bushels of seed wheat. If the sowing of seed then on one hundred acres, would be one hundred and fifty bushels, how amazing would be the amount of the quantity saved in all the tillage lands in Great Britain! This is a very interesting object to individuals, and, in a national view, one of exceeding great importance; it would therefore be very patriotic to use every means to promote and extend the practice.

This improvement in planting has all the prejudice of the common farmer to contend with. He has been used, perhaps almost half a century, to sow his land with wheat, at the rate of two bushels and a half per acre, and at harvest, too frequently has observed he has not half a crop, from which he hastily concludes, that if he had sown but half the quantity, small as his crop was, it would have been but half as great. His land is frequently in a very imperfect tilth, very rough, and full of large lumps; however, the seedsman scatters the seed on the surface, and, in harrowing, a part is covered so deep as never to appear, another is never covered at all, but is picked up by the birds; so that it frequently happens that not one third of the seed ever vegetates, and arrives at maturity. But in planting by hand, every corn is placed at the intended depth and distance, and not one in a thousand miscarries. The only objection which can be made to it is the expence of setting it, and the great number of hands it requires, more indeed than can at any rate be procured in many places. The principal objection is obviated by the many instruments lately invented for sowing the seed very regularly, at any required depth and distance, either in close drilling, to be hand hoed, or in open drilling, with intervals of a proper width for horse hoeing.

Of suiting the Crop to the Nature and Condition of the Soil.

In former times the farmer was governed more by the price a commodity would yield at market, than by the consideration of what the nature and quality of his land was best adapted to produce. But experience and the introduction of many new articles into field culture, have given him a much larger field to range in; and now a sensible farmer regulates his practice by the consideration of what his land is suited to produce a large and profitable crop of, without too great trouble and expence.

The Rotation, or most beneficial Succession of Crops,

Comprehends Improvements of great magnitude and extent. The articles of culture are commonly divided into two classes, viz:—One consists of crops that are said to exhaust and impoverish the land they grow on, the other to ameliorate and improve it. This must be understood in a comparative sense, for, properly speaking, there are few, if any, vegetables that are carried off the land they grow on, to be consumed elsewhere, but, in some measure, exhaust and impoverish the soil, and render it less fertile.

The first class, viz.—Those which are supposed to exhaust the land most, are fibrous rooted plants, as wheat, barley, rye, oats, &c. The ameliorating includes all the leguminous and tap rooted plants, as beans, pease, vetches, turnips, parsnips, carrots, clover, &c. Modern improvements are much increased by a judicious succession of interchanges among these articles; an ameliorating following an exhausting crop, prepares the land for another exhausting crop, and especially if it be a hoeing crop; for by judicious management, the land may be constantly cropped for, many years in succession. *Of Improvements, by Means of Manures, both natural and artificial.*

Manures may be divided into those that act mechanically, and those that act chemically. The substances which increase the fertility of land by mechanical means, are all those which by mere addition and intimate commixion vary its texture. Thus strong, wet, heavy clay, by the mere addition of sharp sand or fine gravel, may be opened, rendered more light and porous, and, consequently, much more fertile. And light, sandy, gravelly soils, whose open, loose, incoherent textures, suffers the rain, dews, &c. suddenly to pass through them, are much improved by the addition of strong binding loams or clay, which render its texture more coherent and productive of vegetable nourishment. Among these may be reckoned marles of all kinds, chalk, shells, and, indeed, every kind of substance, which merely, by its texture, has the

property of rendering soils that are too adhesive, close and heavy, more light, open and porous; and those that are too loose and incoherent, more dense, consistent and retentive of whatever is added to it intentionally, by way of improvement, or happens adventitiously in the course of nature. But marles, chalk, shells, &c. properly speaking, are improvers of the soil, not merely as they correct and amend the texture, but also by their chemical powers, which produce an increase of vegetable nourishment, and give fertility to the ground, so that they act in a double capacity; that is to say, both mechanically and chemically.

The atmosphere is the grand magazine, the great receptacle of putrid vapours, which are constantly exhaled and flying off from the surface of the earth, and from the whole race of vegetables and animals which subsist upon it. These putrid exhalations constitute the true genuine vegetable, *pabulum*, or food of plants; therefore whatever substance of an absorbent nature attracts those principles, more powerfully than the soil it laid on, will to such land be a manure, and infallibly improve the same.

Those substances, which are of a calcareous nature, and can be burnt into lime, have their powers, as manures, greatly improved thereby; provided they are used so as to impregnate the soil before their virtue is diminished or impaired by being exposed to the air. Lime, of whatever substance it is made, whether of stone, chalk, or shells, by being exposed to air for a few days, expands and falls into a fine powder, and thereby loses its active principles, caused by the fire, and becomes totally effete and dead, possessed precisely of the same virtues as the stone, chalk, or shells, of which it was burnt, and no more.

Of the successful Introduction of many new Articles into Field Culture.

Turnips, potatoes, cabbage of different kinds, carrots, parsnips, &c. were cultivated for domestic uses long before the time proposed, but the field culture of these articles for the feed of cattle, in any considerable degree, is quite a modern practice.

Many kinds of grasses have likewise been strongly recommended as valuable improvements, which having answered the sinister views of some of the recommenders, in selling their seeds at a great price, have very deservedly fallen into disuse, and are no more thought of. But there are two articles, however, commonly reckoned among the grasses, which must ever be distinguished and separated from those that have been found useless, that is to say, sainfoin and lucern; these

merit more attention and care than have been usually bestowed upon them, and would well repay the Farmer for all his expence and trouble.

Sainfoin has been sown pretty extensively in some parts, but not so generally by far as it deserves. It generally succeeds well upon chalk, from whence it has been very erroneously concluded, that it will not thrive in a deep soil.

The writer is clearly of opinion, that there are few arable farms in the kingdom which are not capable of great improvement by planting of sainfoin, more especially those which are but poorly provided with good pasture and meadow land. The poorest field of such farms might, by proper management, be brought to produce good crops of sainfoin; and land, the natural intrinsic value of which is not more than from 2s. 6d. to 5s. an acre per annum, might certainly, at a very moderate expence, be made worth from 20s. to 40s.

The greatest enemies sainfoin has to encounter are grass and weeds: these in land that is tolerably good soon overcome and destroy it, unless the Farmer will take the trouble and be at the expence of keeping it clean.

Lucerne, under a similar management, would be a very great improvement on arable farms. Indeed, an opinion generally prevails, that it requires a much better soil than is commonly found. Crops of all kinds are more abundant on a good than on a bad soil, if they are kept clean; but it is a very erroneous opinion that lucern will thrive only on rich land. It may be raised to great advantage on land of a very indifferent quality, by the same means as sainfoin, and the same care to keep it free from grass and weeds.

Of articles which are truly useful and entirely new, we know of few that have been introduced within the time mentioned. The turnip rooted cabbage is a truly valuable root, which was accidentally discovered some years ago, and has been cultivated, with great success, by several gentlemen, and strongly recommended by them to the attention of the Farmer. Both its roots and greens are exceeding good food for cattle, but what constitutes its principal excellence is its extreme hardiness, for it resists the violence of the most rigorous seasons and severest frosts. When the common turnip and hardest cabbages have been entirely cut off and destroyed, this has continued its fine verdure, and supplied the kitchen with greens, and the cattle with sweet and wholesome roots, even till the middle of May.

With respect to the new articles above specified of Field Culture, applied to the rearing and fattening of Cattle.

The improvements made by cultivating turnips for the feed of sheep, and fattening of cattle, are so generally known, and

extensively practised, that it seems unnecessary to say any thing on that head.

Of all the articles we have mentioned or that are yet known, perhaps very few can equal, and none excel the *potatoc*, the inestimable value of this root is hardly to be conceived: it is not only an almost constant dish in great and opulent families, but in times of scarcity and dearth, the poor are almost wholly subsisted by it. It is of late date, that they have been extensively cultivated for the feed of cattle, and even now I am pretty clearly of opinion that if they were much more generally cultivated than they have hitherto been, the farmer would find his account in it, especially where a substitute is much wanted in the winter and spring seasons for the support of his cattle.

Hogs are immoderately fond of potatoes, and will live entirely upon them, till they are fit to put up a fattening for pork or bacon; and then boiled and mixed with barley or peas meal, they fat them speedily, and make fine meat. Another use I have put them to, that is for the feed of milch-cows. Three gallons a day, half at night, and half in the morning, are quite sufficient to keep a large cow in full milk, and the milk as sweet and as good as in the summer months. Nothing excels them for the feed of cows which are fattening their calves for the butcher.

I have had no experience of their use as food for horses, but I have been assured by a gentleman who resided some years in Ireland, that he kept his hunter, a stone horse, entirely upon them, instead of corn. He ate nothing else, except hay between his feeds of potatoes, as other horses, yet he was as fat, as healthy, as strong, and as full of spirits as if he had given him all the corn he could eat.

QUERIES RESPECTING THE SYMPTOMS OF SHEEP AFFECTED WITH THE ROT.

The following valuable paper was received from one of our old and highly respected Correspondents, and we conceive its contents cannot fail of being highly useful to all our Agricultural Readers. The public spirited endeavours of Dr. Harrison, will, we imagine, be attended with the best consequences, to the farming and commercial interests of this island. We should feel ourselves much obliged to any of our Correspondents, who would favour us with answers to any of the Doctor's queries. E.

Horncastle, June 22, 1802.

THE staple manufacture of this country, and the food of its inhabitants, are so much connected with the health and the management of sheep, that I flatter myself you will readily afford every assistance in your power to any scheme that is calculated to prevent or to cure the numerous diseases to which they are exposed. Impressed with this opinion, I

have taken the liberty to submit to your attention a few questions and remarks, and to desire that you will return an answer, in writing, to each of them, directed either to John Linton, of Freiston, Esq. President of the Boston Agricultural Society, or to myself, as soon as you shall have had leisure to afford the subject an ample consideration.

When I shall have collected the sentiments of experienced and well-informed Gentlemen and Graziers in this part of the country, I hope to be enabled to recommend some plan for preventing that fatal disease, the rot in sheep; which at present is so injurious to the landed property, and the commercial interests of this kingdom.

I have the honour to be, Sir, your obedient humble servant,
To Mr. ——— E. HARRISON, M. D.

1. On what kind of land are sheep most exposed to the rot?

It has been asserted, that clay and loamy lands are the most dangerous to sheep, and that on sandy, gravelly, and peat soils, sheep may feed securely in all seasons of the year.

2. Is land which is always dry, or always under water, ever known to produce it?

3. Are moist, swampy lands, or stagnant pools, when acted upon by heat, ever known, in your neighbourhood, to occasion this fatal disease!

4. Should any instances have occurred to you, where the rot has been contracted in a short space of time, I will trouble you to describe all the particulars.

5. Under what circumstances are sheep found, by experience, to be most liable to contract the rot?

6. What are the first symptoms? And how is the rot distinguished from other diseases of sheep?

7. In all cases, is the liver diseased from the beginning? If so, does it become inflamed, discoloured, affected in its size, shape, weight; or what is the morbid change which it undergoes?

8. Are flukes, or the animalcules, (called by Naturalists *Fasciolæ hepaticæ*) which are known sometimes to inhabit the livers of sheep, always to be found in them, at the commencement of this disorder?

9. Have these flukes, or animalcules, ever been discovered in healthy livers, and where the sheep have never been tainted by the rot?

10. If any sheep have recovered from the rot, under your care, what kind of land, diet, management, and medical treatment, appears to have cured them?

11. It is well known that cows, horses, asses, hogs, hares, rabbits, geese, and poultry, are affected with the rot, as well as sheep; but whether the disease be occasioned by the same cause, or causes, or accompanied by the same train of symptoms in each of them, is by no means ascertained: nor are

we sufficiently acquainted with the condition of the livers, or certain that the flukes, taken from different animals, are exactly similar to one another. Every information upon these points will be very acceptable, and specimens of the flukes are particularly desired.

It being intended by Dr. Harrison, to collect the morbid parts of different animals, he takes this opportunity of soliciting the assistance of such gentlemen as are disposed to promote the undertaking. The parts to be preserved may be put into gin, rum, or any other proof spirits.

For the Agricultural Magazine.

ON THE PROPERTIES AND CULTURE OF COLZA.

(Extracted from Yorke's Annals of Public Economy.—Written by
Mr. d'Herbouville.

THERE is an astonishing quantity of this vegetable cultivated in French Flanders, as well as in Belgium. It is the *brassica arvensis*, of Linnæus, and the *brassica campestris perfoliata flore luteo*, of Loeffing. Rozier observes, that it is despised by gardeners, though it is highly considered by the farmers in the Northern provinces of France. Many Authors have mistaken it for rape seed; but the former is unquestionably a cabbage, the latter a root. They have perhaps fallen into this error, because from the seeds of these two plants oil may be extracted, which constitutes a branch of commerce, not only extremely diffused in these provinces, but also over all Germany; their oil is also generally sold under the denomination of rape seed oil.

It differs very little from other cabbages in its fructiferous parts; its peculiar character is found in its leaves. We remark successively three different kinds of leaves; the seminal, those which spring from the root, and those which shoot from the stalks. The first are the opening of the lobes of the grain; they are a little hollowed in the middle, and they fall as soon as the plant has put forth its first leaves; those which succeed them are borne on a long soft slip, sometimes hollowed in the form of a gutter at the lower part; the exterior is round; these leaves are lightly cut at the base, almost round at the summit, a small inclination to bend obtusely. The base of the leaves is shaped like ears, and these vary considerably; all these leaves are very soft, smooth, and their colour approaches to sea green.

The leaves of the stalks are entire, shaped like a heart, lengthened at the point, and lie close to the stalk at their base, so that it might be said, the stalk shoots from the middle of the leaf.

The root is small, fibrous and pointed. When the plant comes naturally, and without cultivation, its stalk shoots from

twelve to eighteen inches ; and when it is properly cultivated to more than five feet. This stalk is divided at the top into a great number of branches placed alternately, and in a spiral form, covered with a leaf at the place of their insertion in the stalk. The flowers bud at the top of these branches; they are yellow, and the husk which succeeds them is commonly yellowish at the time of its maturity, and sometimes reddish, according to the effects of the sun on the fruit.

There are two kinds of Colza, the one called *white Colza*, because the leaves of the flower are white ; the other *cold Colza*, the leaves of which are larger and thicker, because it supports better the rigours of winter.

Colza furnishes the best oil that can be extracted from the soil of the north. In the central parts of France the oil of walnuts supplies the want of the colza, which is but little cultivated there. Nevertheless it begins to be more known, and in a course of years the walnut trees will doubtless disappear; for nothing is so uncertain as the produce of walnut trees, and nothing more sure than that of colza. The oil of colza is also thought to be preferable to that of the walnut tree; it is therefore proper to restore to seed that vast portion of land, which the walnut trees darken with their shade; besides the corn harvest, which follows that of colza is always excellent, because the root of this plant does not impoverish the surface, nor the six inches below, in which its root sinks. The culture of this plant cannot be carried on to any great extent in southern provinces, on account of the heat of the climate and the scarcity of rain, unless the fields on which colza is planted, could be irrigated.

Culture.—Colza does not succeed in light sandy or flinty soils, because the water easily runs off from them; its stalk acquires but a small consistence; its grain is also small, its husk hardens, and its kernel becomes dry—notwithstanding which the oil extracted from it is more delicate. In too fat and clayey a soil, and one retaining water, the colza yellows rapidly, and vegetates with difficulty; it shoots its stalks slowly, produced from lean husks; small grains filled with a superabundance of vegetable water, and contains but a very small quantity of oil. The colza requires, therefore, a good vegetative soil; and wheat soil is adapted for it, if it be a foot deep. It would be ridiculous to propose the conversion of wheat land into colza, as we shall see presently that the culture of the one does not impede the culture of the other.

Modes of Sowing it.—There are two methods of sowing colza.—In the northern countries it is sown as a nursery, to be replanted, in more southern parts it is sown as grain.

The advantage of nurseries may be reduced, 1st, to the choice of ground, and it is an easy matter to find a suitable

spot; 2ndly, the nursery is commonly near the house, about which the land is always best cultivated; 3d, a parcel of ground is more easily opened than one of great extent. Its nearness, opportunity, the employment of several moments which might be otherwise lost, contribute in a superior degree to ameliorate this small spot; 4th, the dung can be carried at less expence? 5th, unceasingly, under the eyes of the cultivator, the nursery is better attended to, and freed from weeds; 6th, seeds deposited in the ground, so prepared in the most suitable time, germinate and vegetate with great vigour; 7th, the *white colza* which germinates with difficulty will succeed; 8th, a plant thus reared is less fibrous, hence, its renewal is more certain; 9th, the nursery affords all the necessary leisure, to prepare in a proper manner the fields which are to be planted with colza, and furnishes the most favourable opportunity for transplanting it. The advantages of a large sowing may be reduced to a small economy of time, as one man will sow a field in a day, while a week is required to replant the same extent of ground. But if we consider how many days are required to root up supernumerary plants, it will appear, that the expence will be the same, without counting the loss of the value, of at least three fourths of additional sowing.

Culture of Colza sown as grain.—The land must undergo a suitable manuring in sufficient quantity, and must be ploughed; sown, harrowed, and weeded.

1st. *Manure.*—When corn has been reaped from a field intended to produce colza the following year, the straw must be cut high; this stubble becomes a manure, very light indeed, but it keeps the particles of the soil raised up, which is productive of great improvement. The soil which is commonly called *cold*, requires more manure than a light soil. It is impossible to ascertain the precise quantity of dung necessary to each species of soil, the gradations between them being so various. Abundance can never do injury; too much, however, will do harm, especially if the dung be not well spread before it is absorbed in the ground. The common colza requires less manure than the white colza, and the white less than the cold colza.

2nd. *Preparation of the ground.*—As soon as the corn is cut, the ground is ploughed once over; being beaten and pressed close by the winter and spring rains, hardened by the heat of summer, it is not sufficiently divided; and reason dictates, that the opening ought always to be in proportion to the form of the roots of a plant. If the root be not regular, and it cannot penetrate easily into the earth, but is obliged to gain in surface what it would have acquired in depth, what is to be expected? That the laws of nature will be intentionally op-

posed. Thus, a single furrow does not raise a sufficient quantity of earth, and what it does turn up is in clods; hence, it is absolutely necessary to cross plough, over and over again, which is a bad method, because the ploughing must be done one after the other;* sow a nursery, and you will have sufficient time to sow your fields.

3d. *Of Sowing*.—The least distance to be given is a foot, or even eighteen inches, between one plant and another; but by sowing the grain as thick as corn, there will be a vast number of supernumerary plants to pull up, which cannot be done without injuring the pivoty roots of those which remain. It is better to sow colza on the second furrow, and cover it by a third ploughing, by which the seeds will be out of the reach of birds, field-mice, &c. less exposed to the direct influence of the sun, less entwined together by the rain, especially if the furrow be abundant, and on lands which have a small declivity. At proper distances, there should be furrows of communication for the water to run off, and to obviate currents.

4th. *Harrowing*.—The harrow should have teeth six inches long, at the distance of six inches from each other, and the hinder part should be provided with furze, surmounted by a piece of wood to level the earth.

5th. *Weeding*.—It is not sufficient to extirpate weeds, but the supernumerary plants must be taken up as often as necessary, and care must be taken not to break them near the neck, but to pull them up completely with their roots; an operation that is never properly done excepting after rain; the best weeding is with the pick-axe, and it then equals a light ploughing.

Of the necessary labours in the management of a Nursery.—The cultivator who is more anxious about quantity than quality, will select for this purpose, a soil similar to that of which we have treated: but he who prefers the quality, will choose a sandy soil. These two kinds of soil should be perfectly opened, well dunged, especially the former, and the most advantageous operation will be with the spade, which will supply that of every other. The soil of the nursery should be divided into beds, only five feet wide. These are more easily weeded, and there is less necessity to tread down the earth and trample on the young plants. A trench one foot wide should be formed between each bed, the earth of which should be thrown on the bed, and it should be rendered as convex

* Although we are of opinion, that the English Agriculturist will not on this subject, want the instruction of the author of the above treatise; we trust, we shall be excused for taking the liberty of pointing out to him, the Rev. Mr. Close's excellent method of stirring stiff clays and heavy loams.—See Communications to the Board of Agriculture. Vol. 3, part 1st.

as possible. The trench serves to carry off the water, and as a path by which the women and children pass, for the purpose of weeding.

It is of great consequence, not to sow the grain of colza too thick. If a large quantity be necessary, it is better to enlarge the nursery. The use of nurseries leaves the cultivator to his own option what time to sow. A fine day should be chosen, when the ground is neither too dry nor too moist. It is better to have furrows eight or ten inches wide, and to sow them, than to broadcast. These furrows afford the facility of using the pick-axe at any time between each furrow, without damaging the young plants. They generally sow in July; but June is preferable, because when taken from the nursery in October, that is to say, at the time of its replanting, it will be better able to withstand the severity of the winter, particularly the *white colza*. He who sows in a sandy soil, should have water at his disposal, in order to irrigate his nursery oftener than one who has sown on a good vegetative earth.

Of the labours requisite on the field in which the Colza is to be replanted.—He who makes use of nurseries, will not be disquieted about either time or circumstances, in order to give his field the proper labours. He has sufficient time to prepare it from the time the corn is cut, until the beginning of October, when it is to be replanted. Hence, after the latest harvest, two months remain; while he who sows first after the harvest, is obliged to labour instantly, whatever may be the state of the weather. The time most favourable for each ploughing should be selected; when the ground is too wet, the ploughing is more disadvantageous than useful, and when there is a great draught, it does not turn up the earth to a sufficient depth. Before the first ploughing, the ground should be well dunged; the second ploughing should be in August, taking care not to cross the furrows, but to take them obliquely; the ground will be more moved by it; the third, a few days before the transplanting, must cross the former, always obliquely; there will remain a less number of clods. If this be performed by the spade, it will render unnecessary all the ploughings. Whether the soil be turned up by the plough or the spade, the ground must be disposed in beds, convexed in the middle, as before stated: moisture is injurious to colza, and therefore this precaution is necessary in rainy countries.

Of the time and method of replanting colza.—The beginning of October is the proper season, the dew is stronger, the rains milder, the sun less warm, and the plant succeeds better than at any other time. The longer this is delayed, the less

it succeeds; it should be done when the weather appears to be rainy. When the sun is too strong, it dries up the leaves, which are as necessary to the plant as the roots themselves. Care must be taken in raising the plants from the nursery, to do it with an iron handbill, not to bruise the leaves or damage the roots, and above all, not to suffer the earth that covers them to fall, which can easily be executed if the earth be moist, and the nursery has been well arranged in furrows. If at this time the ground were too dry, it will be proper to water it moderately the evening before.

As fast as the plants are taken up they should be placed in rows, in baskets or hurdles, and covered over with thick and moistened linen, and no more should be taken up than can be planted in one morning or an evening. It is better to return often to the nursery, than to suffer the plants to wither; there should be a scrupulous attention paid to their choice. Those which have worms, or are languishing, should be rejected, as they cannot be productive of any real profit.

Of the care which Colza requires until its maturity.—They are few, indispensable, and never uselessly employed; the 1st. is to extract weeds, when they appear, with a little pick-axe in the hand; the 2nd. to replace, as soon as possible, those which have not succeeded, to pluck up those which languish, and to substitute others in their stead; the 3d. to keep the trench clean which surrounds the beds, that is, at the beginning of November, the end of February and April. This earth carried away by the rains, and cast on the beds will serve for manure, and the use of the pick-axe at the time of weeding, will mix it with the rest; there is no manure so natural as that of removed earth.

Of the time and manner of Harvesting Colza.—According to the climate, the seed is commonly ripe about the end of June or July; the season and exposure contribute much to advance, or retard the period of its maturity. The stalk abandons successively its green colour, to assume that of a yellowish, and sometimes bordering on red, when it is ripe. To reap colza in a proper manner, they do not wait for the husks to open themselves, the harvest would be lost. If it be gathered too green, the seed being filled with a superabundance of vegetable matter, will shrivel in drying, and will yield but little oil; it is in its state of maturity the oil is extracted.

The plant is cut with a sickle, having a sharp edge; the grains that are too ripe will fall. It will be proper immediately to take away the plants, to carry them on carts open on every side, in order that they may be completely dried. The place intended under these carts, must be spacious and clean. If the distance of a farm house will not admit of a

quicker carriage, they spread the stalks on the ground in the same manner as gathered corn, and they will remain thus spread abroad during two or three fine days. As soon as the plant is sufficiently dried in the field or under the cart, they heap together the bundles, and arrange them into cocks like corn, that is, the side of the seeds shall be inside, and care observed to place a row of straw between each bundle. If the ground of the sheaves, (a very necessary precaution) is more elevated than the surrounding ground, and forms little hills, the fatal effects of humidity and rains will be avoided; the sheaf is covered over with straw, that the wet may not penetrate within, otherwise it heats, ferments, and putrefaction soon takes place.

If the plant remains on the field, they prepare at the foot of the bundle, before it is untied, a kind of level ground, well trodden, and similar to that for threshing corn. The grains are winnowed in the same manner as corn, or they are cleared by means of cribles or sieves made on purpose, of which there are two sorts, one with round holes, through which the grains and dust pass, and the other with long holes.

GENERAL RULES.—The cleaner the grain is the less it attracts moisture, the less it ferments, the softer is the oil, and it is better preserved from a bad flavour.

Of the means of preserving the grain.—As soon as it is threshed neatly and clean, it is put into sacks and carried to the granary. It is advisable to extend any kind of covering on the roof, because it is generally ill cemented, and there must be a palpable loss of grains on account of their small size. A small quantity of straw spread over the surface of the covering will promote the exsiccation of the grain, it ought not to be heaped together, and should be often moved during the first days. The windows of the granary should be kept closely shut in rainy or foggy weather, in a word every effort should be used to prevent their attracting any moisture, in order that they may dry as fast as possible.

If these precautions are neglected a whitish mouldiness, will fix on the grains; they will be glued one against the other in parcels from ten to twenty, which, unless it be instantly remedied, the whole will be spoiled, the oil will lose its quality, according to the greater or less degree of fermentation and mouldiness, which the grain has experienced.

Those who wish to sell the produce of the harvest in its natural state, will expedite the business, because it shrinks considerably, both in weight and size, those who grind it avoid frosty weather.

The mass remaining after the extraction of the oil, makes a good winter fodder for cattle. From what has been said on the culture of colza, it may be seen that this crop does not

injure that of corn, and that on the contrary, it becomes a real and supernumerary advantage to those countries where the fatal custom prevails of fallowing their lands for a whole year. Colza is replanted in October, that is, in the same year that the land has yielded corn; it is harvested in the July of the following year. There is therefore sufficient time for preparing the soil, either for colza, or for the corn to be afterwards sown, and so far from injuring its vegetation, it enriches the earth by the fall of its leaves. In short it is to alternate the lands, and augment their produce two thirds. Colza should not be planted every two years, but every fourth year.

Colza intended solely for winter fodder, is sown in June, in a field prepared for the purpose; the great leaves may be gathered in November, but it is better to wait until the other green forage is exhausted, or is covered by the snow, and to reserve these leaves for the time when cattle cannot leave the stables. After the winter the stalks are cut some inches above the surface of the earth, and they will furnish a second crop of leaves in the spring.

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ENUMERATION OF PATENTS LATELY ENROLLED.

Nov. 6. **T**HOMAS BARNETT, of East-street, Lambeth, 1082. Surrey, Mathematical Instrument-maker; for an invention whereby a requisite quantity of air will introduce itself into any vessel containing fluids, or a superabundant quantity of air therein, discharge itself so as to preserve the fluid in a constant state for use.

— 6. Robert Walker, of Union-street, St. Mary-le-bone, Middlesex; for dining-tables, upon an entire new construction.

— 13. Henry Smith, Lieutenant in his Majesty's Royal Navy; for an improved vessel or barrel for the more safe and expeditious carriage and conveyance of gunpowder.

— 13. Simon Huguenin, of Brook-street, Holborn, Middlesex; for a machine for accelerating motion with little friction, to be called the Universal Lever.

— 20 Thomas Martin, of Brook-street, near Brentwood, Essex, Saddler; for a method of applying fire, by means of certain machinery, for the purpose of heating liquors, and applying such liquors when heated to various useful purposes.

— 25. Thomas Dawson, of James-street, Long-Acre, Middlesex, Tin Plate-worker; for a lamp or lanthorn, upon an improved construction.

— 25. William Dobson, of St. Clement's Danes, Mid-

diseases, Hardwareman; for machinery for the purpose of chasing away flies and venomous insects.

Nov. 27. Marc Isambard Brunel, of Gerard-street, Soho, Middlesex, Gentleman; for trimmings or borders of muslins, lawn, or cambric.

— 29. James Roberts, of Portsea, Hants, Mechanic, and Edward Brine, of the same place, Coppersmith; for machinery for the purpose of dragging or locking the wheels of carriages of every description, and for instantaneously disengaging the horses therefrom.

— 29. Alexander Ross, of Bishopsgate-street, London, Perfumer; for gentlemen's perukes or wigs.

— 30. Daniel Craaner, a native of Holland, but now residing in the city of London, Merchant; for a method of making verdigris in lumps or powder, with ingredients the produce of Great Britain, which will not only answer every purpose of foreign verdigris, but can be used as a water-colour upon paper, &c.

CRITICAL CATALOGUE.

I. *Ueber die Krankheiten sämtlicher zur Oekonomie gehöriger Hausvögel.*
On the diseases of domestic Animals. By J. D. Metzger, 8vo. 185 pages.

THIS work was written by the author to assist him in his public lectures, and for the purpose of giving economists and farmers just ideas on the diseases of domestic animals. Agreeably to his introduction, the author confines himself to the diseases of the ox, the horse, the sheep, the pig, and the dog, amongst quadrupeds; and amongst birds to those of the cock, the turkey, pigeons, the goose, and duck; amongst fishes, to those which are bred in ponds; and amongst insects, to those of bees. In the first section he describes the means of preserving the health of domestic animals; these means consist only in the method of confining them from the first to a certain regimen, and in preservatives against the diseases which threaten them. The second section treats of the diseases to which domestic animals are liable; and the third, of those which only appear in certain species of quadrupeds. The fourth section treats of the diseases of poultry; and the fifth and sixth on those of fishes and bees. The description of these diseases is accompanied with an indication of the remedies for them.

In the seventh section, the author proposes a kind of portable pharmaceutic collection for the veterinarian, in which the remedies are classed in the following manner: 1. emollients; 2. rubefacients; 3. antiseptics; 4. cooling medicines; 5. diaphoretics; 6. opening medicines.

The 8th and last section contains a list of the best veterinary books for the use of the farmer.

II. *Ueber die Rinder pest und die mittel sie zu heilen und auszurotten.— On the epidemic Disease amongst Horned Cattle, and the Method of curing and extirpating it.* By Dr. G. R. Frank, 208 pages 8vo.

THE author describes the epidemic disorder which prevailed from July 1799, to February 1800, in the district of Gnesen and Podwitz, and on which he made observations for several months on some thousands of subjects. He communicated the results of his observation and experiments to the domain chamber of South Prussia, from which he received an answer highly flattering and encouraging for his attention. The Prussian government having prevailed upon him to print his work for the public instruction, we shall here give a rapid sketch of it, without, however, entering into any development of the author's principles.

The work is divided into eight chapters; the first of which treats of the different names given to this disease, none of which appears to bear a greater analogy to the nature of the disorder than that of the *pestilence* or *plague of horned cattle*. The second chapter contains a description of the disease and its symptoms. The third explains the external signs, and the phenomena observed during the dissection of beasts which have died of the disease.

The fourth chapter is exclusively devoted to a definition of the disease. "It is not, says the author, either an inflammation of the bowels or pustulous eruption that constitutes the characteristic of this disease, it is an actual *Asphemia*, or the result of the enfeebled or exhausted irritability of the alimentary channel, caused by a violent and sudden excitation, and accompanied with a typhus.

In the 5th chapter the author examines the nature of the contagious matter, according to the method of Dr. Mitchill, and considers oxidated azote, in its different combinations, as the real cause of this disease; the only method of destroying it is by annihilating the oxidated azote formed in the body.

The sixth chapter contains the manner of treating it. The author, conformably with his ideas on azote, began by administering sulphuric acid, and the effects were very favourable; but his success was much more uniform and rapid when he employed oxygenated muriatic acid; all the beasts, whose alimentary canal was not previously in a state of mortification, recovered in the space of 24 hours, or two days at farthest. The author rejects preventative medicines as useless, but he recommends the use of salt mixed with pulverized charcoal, to clear the alimentary canal of corrupted matter.

In the seventh chapter the author prescribes methods for stopping the progress of the contagion; and, in the eighth, he develops his plan for exterminating it.

III. *Memoire sur l'Amélioration des Bêtes à laine. Memoir on the Improvement of Sheep.* By J. A. Ogier, of the *Athenæum* of Poitiers, and of the *Agricultural Society* of the Department of Vienne. 26 p. 8vo.

The various works published on this subject in France (one of which we noticed in our last Number) are proofs of the exertions the French are making to rival us in what we still consider the staple manufacture of our island.

France formerly supplied all the European nations with woollen cloths; but for some centuries she has been obliged to import that

article from her neighbours. What the latter owe to a laudable emulation, nature had abundantly lavished upon the French, but their neglect suffered it to degenerate and to be lost.

In the 14th century Don Pedro, King of Castile, being informed of the profits which Barbary sheep yielded to their owners, procured some of that breed; and this was the origin of the beautiful wools of Spain. This breed would have degenerated but for the superintendence of an intelligent minister, the Cardinal Ximenes, who imported fresh rams from Barbary.

In the 15th century Edward IV. King of England, enriched his kingdom with 3000 Spanish sheep, and, in a few years, this valuable breed had multiplied prodigiously in England. Queen Elizabeth took care to renew the breed by means of fresh rams, to prevent it from degenerating.

The Dutch brought, from the East-Indies, a kind of sheep, the wool of which is equal to that of England.

Upon surveying the inattention which prevails in breeding sheep, throughout almost all France, it seems as if this truth had been entirely forgotten, that flocks are the soul of rural establishments. There are, however, some well informed Agriculturists, who, by their own example and by their writings, endeavour to propagate the methods, which they are in the daily habits of employing with advantage. Amongst this small number is M. Ogier, a very distinguished Farmer of Dissay, near Poitiers. Struck with the decay in the breed of sheep in his native country, he has endeavoured, in his interesting work, to fix the public attention on the cause of their little value in France, and on the best methods to be adopted for remedying it.

“To close up all the apertures of a sheep-fold, to keep the unfortunate animals in it upon a dung-hill of six months standing, as in a stove, to make them pass without gradation, and particularly in winter to a degree of cold in the contrary extreme, is to condemn them to the most cruel punishment that can be invented, and to kill them by inches. The necessary consequence is that these animals, being in a continual state of misery and imbecility, yield only a coarse, scanty and stunted wool; and that even those that are able to support the effects of such treatment, live but a third part of the time which nature has been pleased to assign them.”

To the mismanagement of sheep-folds is, therefore, to be attributed the decay of sheep. To correct it, the author recommends the admission of currents of air into sheep-folds in all seasons, to provide fresh litter as soon as it begins to adhere to the animal's feet, to clear away the dung at least every two months during autumn and winter, and still oftener in spring and summer; to keep the ceiling and walls clean, and to whitewash the latter frequently; to purify the internal atmosphere with muriatic acid, according to the processes of M. Guyton de Morveau; and lastly, to fumigate them often with spirits.

The author of the memoir justly reprobates the pernicious practice of forming under stables false store-rooms, in which Farmers deposit the fodder intended for their sheep. This fodder spoils by

attracting the malignant miasmata of the stables or sheep-folds, and afterwards causes diseases among the animals which consume it.

With these precautions "the cultivator will double the produce of his fleece and his manure, and will augment the value of his stock; then the proprietor of a flock of the native breed will see realised a truth delivered by a writer of great merit, M. Delamerville, who says, that one ought to pick up a crown from under the feet of every wether, and find, by following each ewe, six and sometimes twelve shillings." This profit is at least 50 per cent. on all expenses. The first method of improvement, effected only by a better management of the sheep-folds, applies to every kind of sheep; and if the author prescribes it for native breeds, he as earnestly recommends it for the pure breed mentioned in his works, and others crossed with it.

The profit of 50 per cent. on the native breeds is considerable, and superior to that of any production of agriculture; but it must even be doubled by crossing the breeds with the Spanish rams, called *Metis*, or with those of the pure Spanish breed. To each of these methods of improvement the author subjoins an accurate account of the profits resulting from it. The point of perfection, however, in this species, and the highest degree of improvement, consist in raising flocks of the pure Spanish breed in such countries where it can be effected. This breed is the most perfect variety of the species, and is distinguished by the name of *Merinos*, or fine woolled sheep.

M. Ogier demonstrates by calculation, that if the third method of improvement, which he proposes, requires a greater sum in the first instance, than the second method, and the fourth still more than the third, that the profits likewise increase in proportion to the expence.

They are not the precepts of a vain theory which M. Ogier inculcates in his memoir. He has ascertained their truth and justice, by numerous and uniformly successful experiments, and he is therefore entitled to the greatest attention.

IV. *Rapport fait à l'Ecole de Medecine de Paris sur une Question relative à la Nourriture des Cochons. Report delivered to the School of Medicine at Paris, on a Question relative to the Food of Pigs.* By M. Chauffiers.

IN a letter, dated the first complementary day of the year 10, the Prefect of the Police informed the School of Medicine, that a breeder, living at Paris, fed a great number of pigs with horse-flesh; and, as amongst the horses which die of themselves some may be afflicted with the glanders, he feared that the flesh of pigs fed in that manner might occasion diseases in those who consume it, and if that method were prejudicial, he feared that it might be practised out of the city; he therefore requested the opinion of the School on this subject, that he might give orders, and take the necessary measures accordingly.

This question, which proves the continual solicitude and vigilance of the Prefect of Police in matters relative to public salubrity, seems to deserve the greatest attention, because to obtain an accurate solution of this problem, it will be necessary to enter into various considerations, which involve the interests not only of the adminis-

tration of the Police, but even of commerce, the arts, and rural economy.

It is doubtless of great importance to remove with care from the habitations of men every thing capable of altering the air, water, food, every thing liable to produce infection and putridity, and thus causing debility and disease. This precept is of primary and absolute necessity, particularly in populous cities, which contain a great number of individuals, brought together in a small compass by their business and their commerce; thus on this important point, the laws, ordinances and regulations are uniform amongst all nations. All agree in prohibiting in the interior of cities, shops which employ materials or processes obviously detrimental to salubrity; they expressly forbid the rearing, feeding or fattening beasts in cities, and allow of establishments of this kind only in the suburbs, in the circumjacent hamlets, in places sufficiently isolated, and around which is space enough for the circulation and renewal of air, for the dilatation and dissemination of the miasmata and vapors proceeding from a number of animals, and from heaps of dung.

Although these measures are indispensable, and must apply equally to all large cities, yet Paris requires some particular considerations. Indeed, now that vast tracts which were formerly separated from Paris, are inclosed within the city, it would be unjust to remove without the walls many establishments which exist in it. There are likewise in this immense circumference, quarters which are in some measure isolated from the centre, and which, from their position, their extent, and their facility of renewing the air, must be considered as suburbs, as hamlets added to the original extent of the city. Therefore, in order to reconcile the interest of individuals with what the more important interest of public salubrity demands; the Administration of the Police, although conformably to the precise letter of the law, it prohibits both in the centre of the city, and in the populous quarters, the keeping of beasts, and every establishment of arts or manufactures, capable of tainting the air, and the most necessary articles of consumption, yet it may permit and tolerate these establishments at the extremities of the city; in places sufficiently remote from the centre, and which, from their position, may be considered as suburbs. Thus in places, possessing the advantages of isolated hamlets, people may, without detriment, be allowed to keep a few cows, goats, or she-asses; the milk which those animals supply is of daily use, either for children or as a remedy in some kind of disorders. But although these establishments be permitted and tolerated, yet they ought to be subject to the inspection of the police; the number of animals kept in them should be limited, and always proportionate to the extent of ground, to its situation, and to the circulation of the air.

The breeding of pigs certainly does not afford the same advantages as the keeping of cows and milch goats; it consequently appears proper to restrict it entirely to the country. Yet, on other accounts, this subject deserves particular consideration. Besides the flesh of the pig supplying a wholesome and agreeable food, besides the considerable and daily consumption of its grease and lard, it

must be observed that in the country the breeding and fattening this animal is attended with considerable expence, whilst, on the contrary, in the vicinity of a city he is reared and fatted easily and expeditiously, with a thousand things that would be useless for any other purpose, and would be entirely lost. Thus in breweries, distilleries and starch-houses, the pig is maintained and fatted on the grains, which are thrown away; he likewise grows fat on the offal of kitchens, and on the flesh of dead animals, experience leaves not a doubt on that head. But here several important questions arise, which must be successively examined. It may be asked, if it be advisable to employ, as food for pigs, the flesh of horses and other animals? If there are not some disadvantages attached to the mode of feeding them? If it is not to be feared that the flesh of these pigs may afterwards be the cause, more or less remote, of different diseases amongst those who consume it?

If we first of all take a survey of the places destined for the reception of the carcases of horses, and other large domestic animals, which die, either of old age, or by some violence or disease, we find in the vicinity of the city a space more or less extensive, open on all sides, in which the carcases are in general left in the open air, without any precaution. In some of these places, those who follow this profession, after skinning the animal, separate the principal bones and hoofs, to be applied to certain objects used in the arts, and take a portion of the flesh, which they employ as food for dogs, or in the crab-fishery: but the mass of the entrails and flesh which remains on the ground, exposed to the air, soon passes to a state of putrefaction, exhaling the most fetid odor, becomes the asylum and prey of a multitude of insects, or is devoured by dogs and wolves. In some other places, but rarely, these carcases are slightly covered with earth, but not in sufficient quantity to concentrate, or absorb the putrid effluvia. Attracted by the scent the wolves soon tear it out of the ground as their prey, and the insects collect from all quarters for their share of the spoil. Lastly, in most villages, they are satisfied with dragging the carcase into a hedge, frequently throw it into the first ditch they come to, and even sometimes by the road side. Thus, in their present state, these receptacles serve only to generate corruption and putridity; to attract wolves, to promote the multiplication of insects, and they might become very dangerous in case any epidemic disease should, in a short space of time, carry off a great number of domestic animals. The effluvia exhaled from a mass of carcases, left in this state, without precaution might, if wafted by a current of air to the towns, produce the most terrible effects; for from whatever cause they may proceed, putrid miasmata are one of the most active agents of destruction to mankind. It is therefore to be wished, for the general interest and public salubrity, that instead of disposing of the carcases of animals in this way, they might be employed in our fabrics and manufactures, and be turned to a different account. We see with indifference these carcases destroyed around our habitations by putrefaction, to serve for food to wolves, to birds of prey, to a thousand different insects. Can any one then have any scruple, any repugnance to employ them for feeding a useful animal? Can any one be

afraid to rescue them from putrefaction, in order to transform them into a living substance, in order to convert them into preparations useful in the arts, necessary for our wants ?

Very different from other domestic animals, the pig does not confine himself to one single kind of food ; animals or vegetables, raw or not, every thing agrees with, and serves him for food. He even appears to have or to acquire a great fault, a particular taste for animal substances. Thus, in the country, the boar and the sow frequently devour their young if they be not watched, and sometimes even seize young children in their cradles. It is ascertained that the pig can subsist equally well upon every kind of substance, vegetable, or animal. This circumstance is not unimportant, as relative to animals destined for the daily supply of our tables. The nature of the substances which have contributed to their customary food and to fatten them, contributes much to the quality of their flesh, to their digestible and nutritive properties. We discover it more or less distinctly by a particular flavour : thus the birds and quadrupeds, which live in marshes, feed upon fish, have an oily taste, communicated by the fish ; the rabbit, fed upon cabbage leaves, certainly has a different flavour from one fed with the tops of wild thyme. Let us, therefore, consider what are the effects relative to the pig, of the different substances employed to feed him, to fatten him, and to render him fit for the uses of domestic economy.

The experience of those who employ themselves exclusively in breeding this animal, teaches us that the qualities of his flesh and lard, differ much according to the age of the animal, the exercise he is permitted to take, but principally according to the nature and quantity of the alimentary substances given him, the mode of distributing them, &c.

Thus it has been ascertained that the pig grows to his full size, and becomes fat in a little time, if driven into the forests when the acorns are ripe, and if they are in sufficient quantity ; but that this kind of food renders his fat soft, and his flesh coarse and oily. It is still more so if the animal is fed with beech mast ; on the contrary, it is watery, pale, insipid, and dissolves, as it were, into water when salted, if, as has been for some time the practice, the animal is fed with potatoes. In short, in order to obtain the desired effect, with the vegetables, which are to form the principal part of his food, must be mixed a certain quantity of animal substances, or at least of substances which contain the materials of it, completely formed : this object is effected by giving him grains, fermented flour which has been used in breweries, in starch-houses, skimmed milk, offal, and kitchen wash, which always contain a greater or less quantity of animal substance. " The pigs thus fed under cover, as the author of *La Maison Rustique* observes, have the lean more delicate and the fat firmer than those driven into the woods to fatten." The same advantages are obtained with great certainty, by mixing with the bran or flour, a certain quantity of the flesh of dead animals. To remove every doubt on this important subject we shall relate a well authenticated fact.

In a neighbouring country there are various shops, in which the carcases of animals that would otherwise be left to rot, are carefully collected; there the greatest part of them are made into oil, glue, sal ammoniac, prussiate of iron, Prussian blue; in short, besides these useful productions, a great quantity of fat healthy pigs, are every year reared, which serve principally for pickling for long voyages.

The advantages which the arts and industry may derive from a similar application of the carcases of horses and other animals, have been equally felt in France, and people have at different times employed themselves in turning to some useful purpose the remnants of carcases abandoned to putrefaction. It is about thirty years since an attempt was made to feed a number of pigs solely with horse-flesh; but inattention to the method of feeding them, and particularly the publicity given to this attempt, the effects of which should have been observed in silence, gave rise to a thousand foolish objections, which were repeated by ignorance and prejudice, and which caused the failure of an establishment that already promised success. Since that time a celebrated Chemist has presented to government a new plan for employing the carcases of horses as food for pigs and in certain manufactures, and for thus deriving from them fresh objects of utility for the arts. This project was approved by government, but could not be executed on account of some particular circumstances. This lesson and example have not been entirely lost, and now many individuals employ, with success, the flesh of horses and other animals to feed and fatten pigs, and experience has proved that this method, if well directed, possesses great advantages.

But in this instance, as in every other, we must know how to confine ourselves within just limits. Abuse, inconsiderate use, are attended with disadvantages which it is easy to foresee and to prevent: thus though the pig accommodates himself very well to raw flesh, though with this food he grows very fat in a short time, yet disease ensues if the vegetable substances, which formed part of his customary nourishment, be omitted. If he be suddenly put upon animal food, his flesh contracts a particular flavour, it becomes oily, yellowish, and his fat is flabby: but these inconveniences are prevented; 1, by a gradual and sparing use; 2, by always mixing a greater or less quantity of bran, meal and fresh vegetables, with animal substances; 3, instead of employing raw flesh, it should, by a previous preparation, be deprived by pressure, and a certain degree of boiling of the juices diffused through them. Reduced in this manner to a solid form, these substances will lose their tendency to putrefaction, will easily keep, may thus be transported as an article of commerce, to be usefully employed at a future period.

As to the apprehension that the flesh of glandered horses may cause any particular distemper among pigs, and by their means among men, it must be observed that this affection in horses is not communicable to other animals, and besides, the digestive power destroys every deleterious property of animal substances, that it forms of them new combinations proper for nutrition and assimilation. We are assured, that in a veterinary school, where several glandered horses were dissected, various animals ate of their flesh, without experiencing any ill

effect; and do not we besides, know that Redi swallowed with impunity several grammes of the poison of the viper? Do not we frequently see dogs and other animals eat infectious substances, without, however, contracting any distemper? Our colleague, M. Desgenettes, furnishes us with a fresh instance in his *Medical History of the Army of the East*.

From these facts, and similar ones that might be adduced, we may be perfectly at ease on that point; yet as the glanders is very contagious among horses, it is to be feared that the remnants and flesh of horses which have died of that disease, may, if carelessly removed and kept without precaution, be the means of communicating the contagion to healthy horses. Therefore, till experience shall have decided positively on this point, the regulations which direct that the bodies of glandered horses shall be buried in a deep pit, ought to be strictly enforced.

It remains to be examined if in the present state pigs should be permitted to be kept and fatted in the suburbs, in isolated spots, and if some particular precaution should not be observed on this head.

In reply to this question we shall remark, that for keeping any kind of cattle, a space is required sufficient for the renewal of the air, and for depositing and accumulating the dung; and pigs nourished in part with flesh, tending to putrefaction, require particular attention with regard to cleanliness.

Public salubrity, therefore, requires that the keeping of pigs be prohibited, even in the suburbs, and the parts separate from the centre of the city; excepting by persons who have sufficient room to contain them, and the number ought always to be limited according to the extent and situation of the place. In consequence of these different considerations, we think that the answer of the School of Medicine to the prefect should be as follows:

1. That the method of feeding and fattening pigs with horse-flesh is attended with no ill consequence of any importance, and cannot occasion any disease in persons who consume the flesh of pigs fed on that substance. Yet, instead of using the flesh raw it were to be wished that it might be reduced to the form of dry cakes, and that the use of it might always be accompanied with a certain quantity of vegetable.

2. That this method, superintended and followed by intelligent men, may furnish various objects of utility in the arts, in commerce, in rural economy, and thus open a new channel to industry.

3. That this kind of establishments for feeding pigs should be strictly watched; and that they should be allowed only to individuals having an isolated place, and sufficiently extensive for the purpose of cleanliness.

4. That it is advisable to enforce the regulations, ordering the bodies of glandered horses to be buried in pits of considerable depth.

HISTORY.

National Transactions.

FRANCE.

THE first consul is shortly expected to make a journey through the nine Belgic departments of the French Republic, and General Belliard has received orders to form near Brussels, a camp of 10 or 12,000 men.

The French Government is reported to have formed a design, to construct at the mouth of the Scheldt, a dock-yard, and naval dépôt, upon the same plan as those of Brest and Toulon.

Armaments are preparing with all possible expedition, for taking possession of the foreign establishments ceded to France, or her dependents by the treaty of Amiens. The report of the cession of the Floridas by Spain, is again revived.

The unfavourable accounts from the West Indies, and the miserable state of the army in St. Domingo, are subjects of no small mortification to the Consular Sovereign. A large proportion of the new levied conscripts are doomed to perish, by the complicated miseries of that destructive climate.

A squadron is fitting out at Dunkirk, which is to take on board troops and artillery, for the French possessions in the East Indies, that is, for Pondichery. Such men are particularly selected, as have already been accustomed to the warm climates of Italy and Egypt.

GERMANY.—A convention is said to have been concluded regulating the indemnities to be given to the house of Austria, and the Grand Duke of Tuscany.

Changes of considerable importance, have taken place in the administration of the Court of Vienna. The Archduke Lewis is to have the government of Bohemia; the Archduke Victor Antony, the government of the Venetian States; and the Archduke Charles is to assume the title of Prime Minister. The Archduke Regner is to embrace the ecclesiastical state, in expectation of being hereafter raised to the dignity of Coadjutor of the Elector, Arch-chancellor, and Teutonic Grand Master.

The King of Prussia, it is said, intends visiting his new and former possessions in Westphalia, early in the ensuing spring; the cabinet of Berlin purposes to erect a line of fortresses on the frontiers.

The Prince of Orange has in his new official acts, assumed the title of reigning Prince of Fulda, Corvey, &c.

DENMARK.—It had been the custom of ships of every nation, to salute on their passing the Elbe, the Danish battery near Glückstadt, and orders had been given to all the French vessels to comply with that usage. The first consul, however, has recently ordered his Ambassador at Copenhagen, to signify to his Danish Majesty, that upon consulting all subsisting treaties and precedents of every description, it appeared that the Elbe is a free river, and that the Danish flag could not in consequence, exact from any nation those marks of homage, or salute, to which it was supposed to be entitled; that the French ships would in consequence of these considerations, pass up and down the Elbe as before, without saluting, and that Denmark would of course not demand salutation, even from the smallest states of Europe, in amity with the French people. The court of Denmark appears to have complied with this representation, as orders have been sent to discontinue the works which were carried on at the fortrefs of Glückstadt.

BATAVIAN REPUBLIC.—The government has presented to the legislative body, the plan of a voluntary loan of 24 millions of florins, for the year

1803. This proposal was on the 24th of January adopted, and sanctioned by the legislative body. The effect of this measure has caused another depression of the funds, and the principal merchants consider the check which credit will suffer by the measure, as almost irreparable.

The transports composing the armament in the ports of Holland, destined for Louisiana, have on board 6000 troops, and are to be conveyed by three ships of war. They have been waiting some time for provisions, which were expected from Belgium, and are now ice-bound in the Meuse.

Accounts from the Texel state, that the transports had sailed, having on board troops and stores, destined for Batavia and the Moluccas. Several vessels have also sailed with troops for Surinam, Demerara, and other West India colonies.

TURKEY.—Intelligence has been received from Egypt, which must necessarily invite the attention of Europe to that remote, but interesting country. The army of the Pacha has been totally defeated by the Beys, and almost entirely cut to pieces. Scarcely any of the Turks would have escaped, had not the commander of the English and Turkish troops in Alexandria, detached a part of the garrison to rally the fugitives, and check the further progress of the Beys. Egypt must therefore, in all probability, revert under the dominion of the Mamelukes, if the present state of European politics, and the views of some of the leading powers, did not convince us, that this imperious and desolating domination, would not be suffered much longer to exist.

The mission of Colonel Sebastiani, who is now at Suez, on his tour through the Levant, sufficiently intimates the projects of Bonaparte, and the immediate crisis seems to supply him as a friend of the Porte, with a favourable pretext for the indulgence of his ambition. Under these circumstances, Alexandria will certainly not be relinquished by our force, till some adjustment has been made for the security of Egypt.

The plague is making great ravages in Constantinople; the foreign envoys and many of the inhabitants, have removed for security, from that city.

ITALY.—After the departure of the King of Etruria, a Tuscan deputation is said to have waited on the French General Clarke at Florence, to express the wish of the country, that they might either receive again the grand Duke as their Sovereign, or that the First Consul would place himself at the head of the government, in the same manner as in the Italian Republic. General Clarke assured them, that he would transmit their wishes to the First Consul.

The Emperor of Russia has settled a pension of 75,000 rubles, on the King of Sardinia.

Symptoms of disaffection to the existing system, have manifested themselves in the Cisalpine Republic; the government has in consequence, issued a proclamation prohibiting clubs, political assemblies, and societies, of what are called general debates.

General Menou is appointed Director General of Piedmont, in the room of General Jourdan, who has been called to the council of state.

WEST INDIES.—St. Domingo still continues an object of anxious attention. The negroes so far from having been subdued as reported by the French accounts, are still in force sufficient to find continual employment for their opponents, and with the aid of that powerful auxiliary disease, to threaten their extermination. General Leclerc has fallen a victim to the malignity of the climate, and General Rochambeau has succeeded to the chief command. A reinforcement of 3000 men is expected in the island, but a much greater number must be sent to ensure final success.

The state of Guadaloupe, is however, represented as very satisfactory. Tranquility is restored in that island, and cultivation is carried on with the greatest activity.

It gives us great concern, to find that the yellow fever is making the most dreadful ravages, in our populous and flourishing island of Antigua, and that a great number of our countrymen, have already fallen victims to that dreadful disease.

An intimation stated to have been given to our settlement in the bay of Honduras, by the Spaniards, to evacuate that colony, has been much misrepresented. The governor of the province has required, not the evacuation of that settlement, but only of such parts and districts, as have been acquired either by conquest or encroachment, during the war. This being strictly conformable to the treaty of Amiens, is by no means calculated to excite alarm; and notwithstanding the execution of this part of the treaty, British subjects will continue to enjoy all their former, possessions, and privileges in the bay of Honduras.

GREAT BRITAIN.—The situation of the British Empire has sustained no alteration, with respect to external relations during the preceding month.

With regard to internal concerns, we cannot suffer the great increase which has taken place in the surplus of the consolidated fund, to pass unnoticed. It is the best characteristic of the minister's foresight and talents, and must prove, to the country at large, the subject of genuine exultation. Of Mr. Addington's ability and integrity, we have other instances equally gratifying, in the new system of reform and economy, introduced into the several branches of the public service. To the excess of nearly 400,000*l.* beyond the estimate for the three last quarters, we have to add, a saving in the naval and barrack departments, of 1,300,000*l.* This spirit of economy which we are certain will experience no abatement, is above all other measures, calculated to benefit the country.

The accounts from the Mediterranean fleet, of a mutiny on board one of the ships, composing it, although it may be a subject of regret, is not calculated to excite public uneasiness.

Every praise is due to ministers, for the manner in which they have proceeded in the investigation of the business of the alleged conspiracy, and the readiness with which they have brought the persons accused to a fair trial. The commission for this purpose was opened by Lord Ellenborough, at the Sessions House Newington, on the 20th of January, when a true bill for high treason, was found by the grand jury, against Colonel Despard, and twelve of his accomplices. The court then adjourned to the 5th of February, when the prisoners will be arraigned previous to their trial, which it is understood, will take place on the 7th.

The subjects which have occupied the attention of Parliament since our last till the time of the adjournment are as follow :

HOUSE OF LORDS, Monday, Dec. 20.—The woollen manufacturers bill, indemnity bill, felons transportation bill, corn import and export bill, navy commissioners bill, Irish flour bill, sugar bounty bill, a bill for rectifying a mistake in the Irish militia pay bill, a bill for rectifying a mistake in the English militia bill, in consequence of which dissenting ministers were held liable to serve, and three naturalization bills, were brought up from the Commons, and read a first time.

TUESDAY, DEC. 21.—Lord Pelham moved the second reading of the navy commissioners bill. On this measure, the Lord Chancellor said that he much feared it tended to violate a principle upon which, perhaps depended nine tenths of British freedom, that no man should be compelled to answer questions which went to criminate himself; he did not object to its second reading, but should give it the utmost consideration in its passing through the Committee, and propose such additions or alterations as should keep the grand principle of British jurisprudence just adverted to free from all violation.

The bill was then read a second time and ordered to be committed to morrow. The different other bills received from the Commons were disposed of in a similar manner.

WEDNESDAY, DEC. 22.—The bills read a first time on Monday, went through a Committee, and were ordered to be reported tomorrow.

The Irish sugar bounty bill, and Irish provision bill, were received from the Commons, and read a first time.

On the motion for committing the navy commissioners bill, it was opposed by the Duke of Clarence, who concluded a speech of considerable length with a motion to postpone the commitment of the bill till that day three months.

The Lord Chancellor mentioned his intention of making some amendments in it; as some good might result from it, and as the existing abuses were on all hands acknowledged he could not agree to his Royal Highness's motion.

The question being then put, was carried, that the House should now resolve itself into a Committee.

The House having accordingly gone into a Committee, a variety of alterations in particular clauses were adopted, after some conversation in which the Lord Chancellor, the Duke of Clarence, Lord Nelson, Lord Carlisle, and Lord Ellenborough took a part. The principal amendment was to the effect of preventing any questions being put to those summoned before the Commissioners, which should tend to criminate themselves.

FRIDAY, DEC. 24.—The navy commissioner's bill, malt trade, and several others, were read a third time, passed, and ordered to the Commons.

MONDAY, DEC. 27.—The Irish provision bill, and Irish sugar bounty bill, were read a third time and passed.

Lord Somerville moved the second reading of the woollen manufacturer's bill. The bill was read a second time, and ordered to be committed the first Tuesday after the recess.

WEDNESDAY, DEC. 29.—The Commons being in attendance below the bar in consequence of a summons to that effect, the Royal assent was given by commission to the English and Irish militia amendment acts, English and Irish sugar bounty bill, general corn trade bill, Irish provision bill, Malta trade bill, felon transportation bill, Dublin baking bill, navy abuses bill, and several other public and private bills. Upon which the House adjourned to Thursday, 3d of February.

HOUSE OF COMMONS, MONDAY, DEC. 20.—The English militia amendment bill, and the English sugar bounty bill, were read a third time, and passed.

TUESDAY, DEC. 21.—The Irish sugar drawback bill, and the Irish corn intercourse bill, were read a third time and passed.

Mr. Vanittart obtained leave for a bill appointing commissioners to put in force a bill granting duties on pensions, &c. Mr. Corry moved for an account of the ordinary revenue, and extraordinary resources of Ireland, from the 25th March, 1799, to the 5th of January, 1802. He also moved for a list of the officers, whose accounts are audited by the Commissioners for auditing public accounts in Ireland; both of which were ordered.

Mr. Addington gave notice that after the recess, he should move for leave to bring in a bill for consolidating the acts relative to the customs in a similar manner to the act of 1789. He should also, propose a measure for extending the bonding and warehousing system to articles which do not at present come under that indulgence. It is not intended to establish a system of free ports, but that licences should be granted to certain ports, where there was ample room and accommodation for warehousing goods.

This day and on Friday, the orders for taking into consideration various petitions against elections, were discharged from the petitioners failing to enter into recognizances.

MONDAY, DEC. 27.—The House took into consideration the amendments made by the Lords upon the navy commissioners bill, which were read a first and second time after some opposition, and agreed to.

Mr. Sheridan gave notice that after the recess, he should bring forward the subject of a paper signed by five noble Peers, which he had seen in the *Ag. Mag. Vol. 8.*

public prints, and which he conceived to be a high infringement of the privileges of the House.

WEDNESDAY, DEC. 29.—Mr. Addington moved for the adjournment of the House to the 3d of February. A warm debate on the propriety of such a measure at such a time, took place, which was very strenuously opposed by Messrs. Elliot and Windham.

Mr. Alexander gave notice, that after the recess he should submit a proposition for the improvement of the port of Belfast. Adjourned to Thursday, February 3.

Agriculture.

WE are happy to learn that the general state of agriculture throughout South Wales is in the highest degree flattering and good. The wheats already up appear extremely healthy and strong; the late frosts, too, will add essentially to the mellowness of the glebe.

Lord Dunmore, who resides in Dunmore Park, on the Frith of Forth, seven miles below Stirling, has thirteen acres of luxuriant land, laid out almost wholly in the garden. During his Lordship's absence on the public service his son, Lord Fincastle, observed an old pear-tree which had long discontinued bearing, except on one branch only, with fruit. He accordingly pointed it out to the gardener, who examining it, found that this branch, which was about the thickness of a man's arm, had most probably wantonly been cut all round, and that the incision was so deep as to go to the heart of the bough, which was within about an inch of being entirely severed from the trunk. As there appeared to be no other probable cause for the fecundity of the branch but the accidental incision, Lord F. ordered another bough to be cut in a similar manner, and with equal success. Upon Lord Dunmore's return, he ordered the same experiment to be tried upon an old pear-tree, which had been five or six years without bearing, and the incision to be made in the trunk, instead of the single branches, and however extraordinary it may seem, the whole tree was in a short time after in full bloom.

A considerable quantity of flour has lately been sent to New South Wales, where it is particularly scarce. A few years ago the quantity of grain was so great that on stopping the distilleries it was literally left to rot for want of consumption; but now the European market is resorted to, to avoid a famine. India corn, which then sold at 4s. now finds a greedy sale at 2 1s. Pork, which was abundant, is now imported from Otaheite at 8d. per lb. and in consequence of the scarcity of this, as well as every other article of provisions, the allowance has been reduced from 7lb. to 1lb. 10oz. per man per week.

Mr. Seabrook's apple trees in Kent have excited uncommon curiosity, and he has had a great number of visitors to see them. The following is the extract of a letter from himself upon the subject, dated the 16th January.

"The trees are about 25 or 26 years growth, and of rather a forward striped sort, and the first crop produced full nine bushels from two trees, in the month of July and August, upon the Midsummer shoots there appeared a great shew of very fine blossom, since which time they have turned into fruit, and keep growing very much, and one tree had blossom till near Christmas. I have this day told the number of apples now upon the trees, and found them as follows: on one tree 364, another 302, and the third 14 apples, the latter of which I did not discover till Friday last; besides those now mentioned, I have no doubt but I have gathered, at different times, from 250 to 300, for people that came to see the trees; and what appears more remarkable is, that I do not think I have had a dozen fall from the trees by the severity of the weather. There are now remaining several apples the size you mentioned; and I have no doubt, if I had saved some of the largest, they would by this time have measured nearly two inches in diameter."

A sheep has lately been killed on a farm, belonging to Earl Fitzwilliam, at Milton, near Peterborough, which weighed, when alive, twenty-five stone; when dressed it weighed near twenty stone: the saddle which was roasted for the Earl's table, weighed near eighty-four pounds.

A few weeks ago, a cow, supposed to be the largest in England, was sent from the county of Stafford, to London, for sale, for which 430 guineas had been refused in that county.

Mr. Arthur Young, in his inquiry into the best appropriation of waste lands, has, with his usual perspicuity, stated the real causes of the great increase of the poor's rates, and the means by which they may be diminished. After a great variety of reasoning, and the statements of numerous facts, he emphatically concludes with this important principle, "That of all the methods of improving waste lands, none are so important, or so profitable as applying them to the support of the labouring poor."

He illustrates this position in the following striking manner: "Go," says he, "to an ale-house kitchen of an old enclosed country, and there you will see the origin of poverty and poor rates. For whom are they to be sober? For whom are they to save? (Such are their questions.) For the parish? If I am diligent, shall I have leave to build a cottage? If I am sober, shall I have land for a cow? If I am frugal, shall I have half an acre of potatoes? You offer no motives; you have nothing but a parish officer and a workhouse! Bring me another pot.—

"It is true that wastes are not every where to be found, but the principles of property are universal; and the more they are encouraged amongst the poor, the less burthen some will they be found. He who cannot possess an acre may be the owner of a cow; and the man will love his country the better even for a pig.

From a combination of the facts stated by Mr. Young, he deduces the following corollaries:

I. That nothing tends so strongly to give the poor industrious and frugal habits, as the prospect of acquiring, or the hope of preserving land.

II. That wherever they are possessed of it, they are either kept entirely from the parish, or supported at a very small comparative expence.

III. That parishes are at as great an expence to keep them in a state of distress as would fix them in a comfortable situation.

IV. That enclosures as hitherto conducted have no such effect.

A few days ago arrived at Plymouth a cargo of different descriptions, viz. Nine large Spanish mules and asses; and two blood ponies, intended as presents; they are in the Lomnon Inn, together with a most beautiful Spanish ram from Buenos Ayres; his fleece is of that kind of wool called Spanish wool, and no doubt, if properly managed, will improve the breed of sheep in this country; he is finely proportioned, full of dignity, has four horns, and when angry, butts in a grand style.

We, last month, briefly noticed the meeting of the Bath and West of England Society, for the Encouragement of Agriculture, Manufactures, and Commerce, held at Bath on the 14th of December. We have since been favoured with the following more circumstantial account, which we doubt not, will be acceptable to our readers.

Many lots of neat cattle, sheep, and swine, both fat and for breeding, being exhibited as usual for the prizes, able committees were appointed to inspect the same; and suitable persons were also named for examining the different machines, agricultural implements, &c. that were produced for the sanction of the society. After these arrangements, the further business of this anniversary, commenced with the necessary new election of committee gentlemen, to fill up the vacancies in committees, &c. when his Grace the Duke of Bedford, was unanimously elected to the office of President; Sir Richard Colt Hoare, bart. and Thomas Joyce, esq. were elected to the office of Vice Presidents; J. G. Everett, esq. to be a member of the committee of agriculture;

J. Waldron, esq. of the committee of manufactures and commerce; and E. Ludlow, esq. of the committee of mechanics, and useful arts.

The following premiums and bounties were voted, viz:

	£.	s.
To John White Parsons, esq. for the most completely improved farm, premium	21	0
To E. Ludlow, esq. for ploughing 500 acres, by a pair of horses without a driver, ditto	5	5
To J. Waldron, esq. for manufacturing navy blue broad cloth, from wool of British growth, ditto	12	12
To W. Dyke, esq. for exhibiting a crop of autumnal turnips; producing upwards of 48 tons per acre, ditto	5	5
To Mr. A. Crocker, for exhibiting a newly constructed instrument, for ascertaining the dimensions of standing timber—an honorary reward, accompanied with a vote of thanks	3	3
To Simon Payne, esq. for exhibiting a pair of working oxen, bounty	3	3
To Mr. White, for a fine Devon bull, premium	5	5
To Charles Gordon Gray, esq. for an excellent boar of the Chinese mixture, ditto	5	5
To John Paul Paul, esq. for an excellent sow, with her offspring of the Chinese mixture, ditto	5	5
To Dr. Parry, for the best lot of sheep, the produce of a Spanish ram, with English ewes, ditto	5	5
To Mr. Effington, for the best fat cow	5	5
To T. Crook, esq. for the best fat sheep	5	5
F. J. Billingsley esq. for the best fat pig, of the Chinese mixture	3	3
To L. Tugwell, esq. for producing a perambulator completely calculated for the purpose of measuring lands, roads, &c. an honorary reward	5	5
To Thomas Hulbert, a labourer in husbandry, to W. Dyke, esq. for drilling upwards of 60 acres of corn in a husbandmanlike manner, premium	5	5

The following premiums were awarded to labourers and servants in husbandry, viz:

To William Yeatman, for bringing up 14 out of 15 children, without parochial aid	3	3
To Robert Senior, for bringing up 11, all of his children	3	3
To Thomas Hales, for bringing up 9 ditto	3	3
To Michael Smith 8 ditto	3	3
To J. Durand for 49 years faithful servitude in husbandry	3	3
To William Willis 42 years ditto	3	3
To George Oddy 36 ditto	3	3
To Ann Baker 44 ditto	3	3
To Martha Staunton 33 ditto	3	3
To Susannah Parsons 29 ditto	3	3
To Elizabeth Line 26 ditto	3	3

The chairman was requested to accept the unanimous and most grateful thanks of the Society, for his valuable gift of the marble bust, of their late illustrious and lamented president, Francis Duke of Bedford; also to the Right Hon. Lord Somerville, for the communication of a highly important memoir respecting the Spanish breed of sheep, and the different crosses of them; as well as for his Lordship's voluntary exhibition of agricultural implements, and of various specimens of sheep in reference to the memoir: the whole of which received the most decided approbation.

The thanks of the meeting were voted to his Grace the Duke of Bedford, for his circular communication inviting the different breeders of sheep to send to Woburn, free of expence, between the 15th of September, and the 15th of October, 1803, lots of 20 wethers each, with design to ascertain the comparative merits of the various sorts of sheep in this island.

The following regulations are for the future to be observed in the transactions of the Bank of Amsterdam.

Art. I. That the value of every Bill of Exchange which shall be drawn on or negotiated in this city after the 30th of the month of October, approaching upon places situated out of the Republic, and the amount of which shall be 300 florins and upwards, shall be acquitted in the Bank of this city.

II. That all Bills of Exchange upon, or payable in this city, of the value of 300 florins and upwards, drawn from places situated in the French Republic, Great Britain, Spain, Portugal, and Italy, shall also be paid in bank after the 31 of January, 1803.

III. That every Bill of Exchange which, conformable to the Articles I, and II. is to be acquitted in bank and shall be proved to have been done in any other manner, shall be held to be all paid, and each of the two contravening persons shall pay a fine of three per cent. upon the total sum of these payments, made out of the Bank.

IV. That as payments of Bills of Exchange will not be considered good, but conformably to the 1st, and 2d, articles, the usage introduced for sometime, of writing in Bank to one's self, for another, as well as that of regulating the payment of it in current money, shall cease at the periods mentioned in the said articles; the resolution of the Council of Commune of the 6th October, 1796, being in that respect revoked by the present.

It is of great importance that ship-owners, masters of vessels, and British merchants in general, should know, that from a very recent opinion of the Attorney and Solicitor General, a vessel of any description, the length of which (aloft) exceeds more in proportion than three feet and an half to one foot in breadth, must be furnished with a licence from the Admiralty, before she can be used to any purpose of navigation whatever.

Prices of Raw Hides, Hay and Straw, &c. for January, 1803.

		First Week		2d Week		3d Week		4th Week	
<i>Raw Hides.</i>		<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>
Best Weilers & Steers, pr. 8.	—	0 0 to 0 0	—	3 8 to 4 0	—	3 8 to 4 0	—	3 8 to 4 0	—
Middling	—	0 0 to 0 0	—	3 2 to 3 4	—	3 2 to 3 4	—	3 2 to 3 4	—
Ordinary	—	0 0 to 0 0	—	0 0 to 3 0	—	2 10 to 3 0	—	2 10 to 3 0	—
Market Calf	—	0 0	—	9 6	—	9 6	—	9 6	—
Eng. Horse	—	— 1 to — 1	—	14 9 to 16 8	—	14 9 to 16 8	—	13 8 to 17 8	—
Sheep Skins	—	0 0 to 0 0	—	5 0 to 10 6	—	4 0 to 9 0	—	4 0 to 8 6	—
Lamb Skins	—	0 0 to 0 0	—	0 0 to 0 0	—	0 0 to 0 0	—	0 0 to 0 0	—
<i>Prices of Hay and Straw.</i>		<i>l. s. d.</i>	<i>l. s. d.</i>	<i>l. s. d.</i>	<i>l. s. d.</i>	<i>l. s. d.</i>	<i>l. s. d.</i>	<i>l. s. d.</i>	<i>l. s. d.</i>
St. James's Hay	—	5 11 6	—	5 13 6	—	5 13 6	—	5 7 6	—
Straw	—	7 14 6	—	1 19 0	—	1 19 6	—	1 — 6	—
Whitech. Hay	—	5 15 0	—	5 18 6	—	6 3 6	—	0 — 0	—
Clover	—	7 — 0	—	7 — 0	—	7 2 6	—	0 — 0	—
Straw	—	1 12 0	—	1 12 0	—	2 2 0	—	0 — 0	—
<i>Uxbridge.</i>									
New Wheat per load	—	131 to 151	—	131 to 151	—	141 to 161	—	131 to 151	—
Barley	—	23s to 27s	—	23s to 27s	—	25s to 27s	—	24s to 27s	—
Oats	—	24s to 28s	—	24s to 28s	—	24s to 28s	—	23s to 27s	—
Beans	—	34s to 40s	—	34s to 40s	—	34s to 40s	—	— s to —	—
New ditto	—	— s to — s	—	— s to — s	—	— s to — s	—	32s to 38s	—
Peas	—	42s to 46s	—	40s to 44s	—	40s to 44s	—	40s to 42s	—
<i>Newbury.</i>									
Wheat	—	46s to 63s	—	— s to — s	—	— s to — s	—	42s to 60s	—
New ditto	—	— s to — s	—	— s to — s	—	— s to — s	—	— s to — s	—
Barley	—	22s to 25s	—	— s to — s	—	— s to — s	—	20s to 24s	—
Beans	—	36s to 40s	—	— s to — s	—	— s to — s	—	18s to 21s	—
Oats	—	16s to 25s	—	— s to — s	—	— s to — s	—	27s to 38s	—
Peas	—	40s to 44s	—	— s to — s	—	— s to — s	—	32s to 36s	—

**Prices of Hops, Meat, Seeds, Leather, Tallow, &c. for Jan.
1803.**

Price of Hops.		First Week		2d Week		3d Week		4th Week	
Bags.		<i>s.</i>	<i>s.</i>	<i>s.</i>	<i>s.</i>	<i>s.</i>	<i>s.</i>	<i>s.</i>	<i>s.</i>
Kent	—	189	to 224	205	to 220	180	to 214	200	to 224
Suffex	—	180	to 215	200	to 215	180	to 216	200	to 215
Essex	—	—	to —	200	to 215	180	to 210	200	to 210
Pockets.									
Kent (new)	—	220	to 252	210	to 240	200	to 240	205	to 250
Suffex	—	200	to 236	205	to 231	200	to 224	200	to 231
Farnham	—	240	to 320	240	to 320	240	to 320	280	to 320
Seeds.									
Canary Seed (per cwt.)	—	86	to 93	86	to 93	80	to 90	80	to 90
Red Clover ditto	—	80	to 112	80	to 112	80	to 112	80	to 110
White Clover, ditto	—	50	to 130	70	to 130	—	to —	80	to 140
Trefoil, ditto	—	30	to 68	20	to 70	30	to 75	30	to 76
Caraway ditto	—	40	to 44	40	to 44	40	to 44	40	to 44
Coriander ditto	—	25	to 29	25	to 29	25	to 29	25	to 29
Turnip, (per bushel)	—	18	to 25	18	to 25	18	to 25	22	to 26
Rye Grass, (per quarter)	—	28	to 48	28	to 48	28	to 56	30	to 50
Cinque Foil, ditto	—	—	to —	—	to —	—	to —	—	to —
Rape Seed, (per last)	—	321	to 361	321	to 361	321	to 361	321	to 361
Meat at Smithfield.		<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>
To sink the offal, p. st. 8lb.									
Beef	—	4	0 to 5 6	4	0 to 6 0	4	6 to 6 0	4	0 to 5 6
Mutton	—	5	0 to 6 4	5	4 to 6 6	5	4 to 6 4	5	0 to 6 0
Veal	—	6	0 to 7 0	6	0 to 8 0	6	0 to 8 4	6	0 to 7 6
Pork	—	5	0 to 5 2	4	8 to 6 0	5	0 to 6 0	4	8 to 5 8
Lamb	—	0	0 to 0 0	0	0 to 0 0	0	0 to 0 0	0	0 to 0 0
Head of Cattle—Beasts about		2,000		2,000		2,000		2,400	
Sheep and Lambs		12,000		8,000		11,500		11,000	
Price of Leather.		<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>d.</i>
Butts, 50lb. to 56lb. each		19	to 20½	19	to 20	19	to 20	19	to 20
Ditto, 60lb. to 66lb. each		23	to 23½	22	to 23	22	to 23	22	to 23
Merchants Backs	—	19	to 20	19	to 20	19	to 20	19	to 20
Dressing Hides	—	18½	to 19½	18	to 19½	18	to 19½	18	to 19
Fine Coach Hides	—	20	to 21	19½	to 21	19	to 21	19	to 21
Crop Hides for cutting	—	19	to 21	19	to 21	19½	to 21½	19½	to 21
Flat Ordinary	—	17½	to 18½	17	to 18	17½	to 18½	17½	to 18½
Calf Skins, 40 to 50lb. p. doz.		24	to 32	24	to 32	24	to 32	26	to 32
Ditto, 50lb. to 70lb. do.		27	to 30	27	to 30	27	to 32	26	to 31
Ditto, 70lb. to 80lb. do.		26	to 28	26	to 28	26	to 28	26	to 28
Sm. Seals (Greenland)		38	to 40	38	to 40	38	to 40	37	to 40
Large do.		51	to 71	51	to 71	51	to 71	51	to 71
Tanned Horse Hides		20s	to 31s	28s	to 32s	18s	to 32s	18s	to 32s
Goat Skins per doz.		—s	to —s	—s	to —s	—s	to —s	—s	to —s
Price of Tallow.		<i>s.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>
St. James's Market	—	4	7	4	6½	4	7	4	6
Clare Market	—	4	5½	4	6½	4	7½	4	7
Whitechapel Market	—	4	5	4	5	4	7½	4	6
Per stone of 8lb. Average		4	6	4	6	4	7½	4	6½
Town Tallow	—	76	6	76	6	79	0	77	6
Russia ditto (Candles)	—	72	0	74	0	77	0	76	0
Russia ditto (Soap)	—	66	0	69	0	70	0	70	0
Melting Stuff	—	59	0	60	0	61	0	61	0
Ditto rough	—	42	0	42	0	45	0	45	0
Graves	—	16	0	16	0	16	0	16	0
Good Dregs	—	10	0	10	0	10	0	10	0
Yellow Soap	—	78	0	78	0	78	0	78	0
Mottled ditto	—	86	0	86	0	86	0	86	0
Curd ditto	—	90	0	90	0	90	0	90	0
Candles, per dozen,	—	12	0	12	0	12	0	12	0
Moulds	—	13	0	13	0	13	0	13	0

LONDON PRICES OF GRAIN for *January, 1803.*MARK-LANE, *Monday, January 3.**Price of Grain, on board Ship, as under :*

There being but few fresh arrivals of Wheat at Market, mealings samples were 2s. per quarter dearer than this day fortnight.

Barley is like life rather dearer.

Malt not quite so saleable.

Oats are not very plentiful, nor have they varied much in price since our last.

Beans are a short supply, and ready sale.

Peas of both sorts are in plenty, and on the decline.

Wheat	45s to 57s	Malt	40s to 46s 6d	Grey Peas	35s to 39s
Fine	58s to 60s od	Oats	16s to 24s	Small Beans	33s to 38s 6d
Rye	35s to 38s	Polands	24s to 25s od	Ticks,	31s to 34s 6d
Barley	23s to 28s od	White Peas	35s to 40s		

Monday, Jan. 10.—Wheat, coming rather sparingly to Market, and the supplies being chiefly from Kent and Essex, prices are higher, say 1s. per quarter, and something more on the prime runs from those counties.

We have a tolerable supply of Barley and Malt, which vary little from last week's prices.

Oats are pretty plentiful, and a trifle cheaper.

A good supply of Peas and Beans of all sorts has likewise rendered those articles rather lower.

Wheat	44s to 58s	Barley	23s to 27s od	White Peas	33s to 39
Fine	59s to 61s od	Malt	40s to 45s od	Grey Peas	33s to 36s 6d
Rye	33s to 38s 6d	Oats	15 to 23s	Sm. Beans,	34s to 37s od
		Polands ditto	24s to 25s od	Ticks,	30s to 33s 6d

The navigation of the river being stopped by the frost, and no arrivals of Wheat, high prices for that article were asked; there, nevertheless, was but little done, and that at no considerable advance.

Barley and Malt likewise obtained rather higher prices.

Oats are also rather dearer, say 1s. per quarter.

In other articles no material alteration.

Wheat	47s to 60s	Malt	42s to 47s 6d	White Peas	33s to 39s od
Fine	61s to 62s	Oats	17s to 24s	Grey Peas	34s to 37s
Rye	35s to 38s	Polands	25s to 26s od	Sm. Beans,	35s to 38s
Barley	24s to 28s od			Ticks	30s to 34s 6d

Monday, Jan. 24.—As we have but few fresh arrivals of Wheat, and our Millers in want of that article, fine samples are 2s. a quarter dearer than last Monday.

Barley and Malt are likewise scarce, and something dearer.

Owing to some fresh Foreign arrivals, Oats are cheaper.

Peas of both sorts are in plenty, but remain, as do Beans, without any material variation in price.

Wheat	45s to 60s	Malt	42s to 47s od	Grey Peas	34s to 37s od
Fine	61s to 62s od	Oats	16s to 22s	Small Beans	34s to 38s od
Rye	35s to 38s od	Polands ditto	23s to 24s 6d	Tick.	30s to 34s 6d
Barley	24s to 28s od	White Peas	33s to 39s od		

(80)

AVERAGE PRICES OF CORN, by the quarter of eight Winchester bushels; and of OATMEAL, per boll, of 140 pounds Avoirdupois.

From the Returns received in the Week, ended JANUARY 15, 1802.

INLAND COUNTIES.

COUNTIES.	Wheat.		Rye.		Barley.		Oats.		Beans.		Peas.		Oatmeal.	
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
Middlesex	58	8	45	0	26	0	25	4	34	4	40	11		
Surrey	56	6	35	0	26	8	22	1	34	6	39	6		
Hertford	51	8	35	6	25	8	21	10	36	0	41	6		
Bedford	60	11	31	2	23	10	19	11	30	10	41	6		
Huntingdon	52	3			24	0	17	4	27	10	38	4		
Northampton	52	8			22	4	19	2	28	4	30	6		
Rutland	57	0			24	6	19	0	32	0			59	2
Leicester	55	11			23	5	19	4	34	3			11	9
Nottingham	62	0	38	0	27	5	20	0	33	0	35	8		
Derby	61	4			27	4	21	8	39	4	39	4	30	2
Stafford	60	3			26	11	20	2	43	3			29	2
Salop	55	10	40	4	26	7	22	0			40	8	63	7
Hersford	52	3	35	2	25	3	21	7	32	4	31	8	64	4
Worcester	51	0	30	4	25	6	23	5	35	0	41	0		
Warwick	55	6			26	4	21	10	40	0	53	0	40	0
Wilts	55	0			23	2	20	6	39	4	35	0		
Berks	57	6			23	6	22	7	34	4	38	1		
Oxford	53	3			22	0	19	9	34	2	37	10		
Bucks	55	9			23	7	21	6	32	11	42	9		
Brecon	57	7	32	0	25	4	16	10			28	0	34	8
Montgomery	56	9			24	5	17	9			34	5	40	3
Radnor	53	5			24	9	18	5			32	0	60	5

Maritime Counties.

Essex	56	10	34	6	24	10	24	0	31	10	36	6		
Kent	54	6			25	7	23	9	30	10	35	6		
Sussex	51	6			23	9	20	9			45	0		
Suffolk	53	7			23	8	20	6	27	10	33	3	49	0
Cambridge	54	4	36	2	24	0	15	3	29	2				
Norfolk	53	1	28	0	23	7	20	3	28	0	33	4		
Lincoln	54	2	35	1	24	6	17	2	31	4	34	0		
York	54	4	37	2	24	3	17	3	34	6	56	0	36	2
Durham	59	2					19	9						
Northumberland	52	0	37	2	23	3	18	6	36	0			15	0
Cumberland	69	9	51	4	28	9	19	6					17	7
Westmorland	74	10	58	4	28	4	22	10					20	6
Lancaster	62	9			32	1	23	3	36	1			18	4
Chester	58	1					19	8					17	9
Flint					34	11								
Denbigh	63	8			32	7	19	7	44	10	28	10	35	
Anglesea														
Carmarvon	64	0	42	0	27	0	15	6					34	11
Merioneth	79	0	58	0	34	8	20	0			36	0	36	8
Cardigan	56	8			20	0	14	7						
Pembroke	47	10			23	4	14	6						
Carmarthen	54	5			22	5	13	0						
Glamorgan	59	7			26	0	19	9						
Gloucester	55	1			23	5	19	7	30	9				
Somerset	55	9			23	2	18	9	37	6	40	10		
Monmouth	57	4			24	5								
Devon	60	2			22	8	16	10	36	0	56	0		
Cornwall	60	11			22	4	14	10					32	8
Dorset	54	5			23	1	21	0			40	0		
Hants	52	9			24	4	20	8	36	11				

PRICES OF COALS AT THE COAL EXCHANGE, LONDON, For JANUARY, 18c3.

Names of Coals.	Mon.	Wed.	Frid.	Mon.	Wed.	Frid.	Mon.	Wed.	Frid.	Mon.	Wed.
	d3.	5ht.	7th	10th	12th	14th	17th	17th	21st.	24th.	26th.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Bair's Main											
Ellen's											
Herton											
aker's Main											
edford Main				42	46 9						
enton								45 6	47		
eamish So. Moor				44 6	48 9						
enwell											
eddick Main											
igg's Main		43 3								50	61
Blackfell											
Bladon Main								45			
Blyth			43 6								
Boundry											
Bourn Moor		38	37 9								
Bowes Main											
Brandling											
Byker											
Byker, High & Low											
Cowpen					45						
Dewsbury Main						47					
Eden Main		38 6	38								
Flockton											
Greenwich Moor											
Haraton											
Hartley											
Heaton Main		43 3		44 6	49			47			
Hebburn Main		43 6		44 6				47			
Holywell											
Hutton Main		43 3			42 9						
Kenton Main											
Lambton's Low dit.											
Marley Hill											
Methley Park											
Montague Main											
Mount Moor											
Newbottle											
Old Ducks											
Pitt's Tansfield M.											
Primrose											
Rectory											
Ruffel's Main											
Simpson's Pontop											
Silver Tops											
Sheriff Hill											
South Moor					45 6						
Stanley Main											
St. David											
Team											
Toft Moor											
Tyne Main			37 3								
Usworth Main											
Walbottle Moor			38 9		49						
Walker		43 3		45 9	50	52 6				61	
Wall's End								48			
Wharton		35 6									
Willington					49			47 6			
Windfor's Pontop		43 3									
Windfor's Taadf. M.				40							
Wylam Moor											
Wentworth											
Whitefield											
Wooler Main											

BANKRUPTCIES AND DIVIDENDS,

Announced between the 20th of December, 1802, and the 20th of January 1803.

BANKRUPTCIES.

A DAMSON, James, Manchester, merchant
Bedford, Robert, Great Bank, miller
Brooks, Joseph, Liverpool, porter brewer
Banks, Christopher, York, bookbinder
Criswell, Thomas, Eddington, hatter
Cailey, Robert, Broucher, dealer in horses
Clarke, Daniel, master mason, Liverpool
Dorford, Thomas, Philip lane, wine merchant
Davies, Richard, Lamb Street, Spital fields, cheese monger
Epps, William, and John Epps, Epithon, innkeepers
Forth, Nathaniel, of Kirby Road, county of York, druggist, &c.
Fisher, J. Brightfield, county of York, white clothier, &c.
Fellows, Edward, Camberwell, haberdasher
Hughe, Robert, Noble Street, warehouseman, Dealer and Chapman
Mill, George, Oxford Street, linen draper
Mawell, Fritchard, Little Guildford Street, carpenter and builder
Minster, Wm. East Bedford, mercer
Mogges, Thomas, Warcham, Dealer and Chapman
Wiggins, John and Robert Higgins, Birmingham, platers
Mughe, Henry, and Michael Moorhouse, Dealers and Chapman
Jewell, Thomas, Sunderland, inn-keeper
James, Laurence, Middle row, Hobbins, linen draper
Johnson, Thomas, Newcastle-upon-Tyne, hardwareman
Arise, Samuel, Manchester, Dealer and Chapman
Janet, Hughes, Cow lane, cheese monger
Kelton, James, New City Chambers, Bishopgate Street, merchant
Kemp, John, Mark lane, wine merchant
Lowe, Joseph, Liverpool, tanner
Lane, M. Birch lane, insurance broker
Lane, R. Baker Street, agent
Leigh, Edward, Cheshire, calico printer
Lewis, Wm. Swansea, butcher
Nath, Thomas, Warwick Street, Cudgen square, plumber and glazier
Neale, John, Brick lane, Spital fields, fileman
Peckers, Hains, Ipswich, woollen draper
Peckers, John, Belsy, grocer
Parr, Wm. late of the Island of St. Dominica, West Indies, but now King's Bench Prison, merchant
Perkins, Timothy, Blue Anchor Road, Bernersley, tanner
Pilkington, William, Saint Andrew's, hop and food merchant
Pickworth, Thomas, Rotterdam, butcher
Pierston, T. and Wm. Samson, Ruffa row, Milk Street, London, Irish factors
Rishman, James Conrad, Bridge Street, Westminster, mercer
Read, John, Peter Read, and Robert Read, Forcing bridge, Calico printers
Smalley, John, William Ellison, and Robert Walmesley, Blackburn, cotton manufacturers
Smallpox, Thomas, Manchester, druggist
Serret, John, Scarborough, victualler
Stronck, James, Abingdon Street, Westminster, master mariner
Savage, Henry, and Isaac Savage, Broadwacomb, milkers
Stuegh, John, Northampton, Dealer and Chapman
Stutson, Edward, Liverpool, cap bower
Trigg, Wm. Kingston, wine dealer
Turner, Samuel, the younger, Laytonstone, farmer
Worthington, Thomas, of Manchester, merchant
Witter, J. Combe, Saint Nicholas, leather dresser
Whitehouse, Sarah, Jam worth, widow, mercer, &c.
Wright, Thomas, of Hordley, clothier
Watson, James, Lynn, druggist
Youngblood, C. and E. Island of Demarara, merchant

DIVIDENDS ANNOUNCED.

ARIS, T. Upper Rathbone place, Jan. 11
Avery, Aaron, New Brentford, linen draper, Feb. 5
Ather, E. Langport Radnor, shopkeeper, Feb. 8
Blackburn, T. Hopton, Jan. 17
Booker, G. and J. Chapman, Manchester, Jan. 29
Beaumont, W. F. Miter court, Cheapside, wine merchant, Jan. 21
Brifon, F. Hay Market, shoemaker, Jan. 22
Bowie, W. and W. Hannah, Black Friars, women, Jan. 22
Benfon, J. and J. Benfon, Lauchers, mercers, Jan. 20
Beck, K. Gloucester, inn-keeper, March 21
Bullen, W. Plymouth Dock, linen draper, Feb. 8
Butler, J. Rickmanworth, cordwainer, Feb. 26
Breadford, S. Basinghall Street, London, broker, Feb. 22
Boyd, A. Tobacco yard, merchant, March 2
Bedford, C. Bristol, merchant, Feb. 2
Blackmore, K. Colanade, Foundling Hospital, glazier, Feb. 5
Benton, Sarah, Yeovil, haberdasher, Feb. 19
Bingham, W. and J. Mulligan, Foster lane, Cheapside, merchant, Feb. 19
Coombes, E. St. James's Street, Westminster, Jan. 29
Cowley, H. Town of Dock, Jan. 18

Croft, J. H. Coleman's Alley, London, merchant, Jan. 18
Cowley, J. and F. Basinghall Street, London, factors, Jan. 22
Duningham, J. Yorkford, linen draper, Jan. 29
Clement, James, Bristol, merchant, Feb. 2
Cock, J. Royal Oak yard, Bernersley Street, tanner, Feb. 5
Cawthorn, G. Strand, bookbinder, Feb. 15
Dawson, J. Liverpool, master mariner, Jan. 21
Dale, M. Ketter, grocer, Jan. 19
Dowbiggin, W. Lancaster, merchant, Jan. 21
Dixon, J. Manchester, merchant, Jan. 27
Drake, R. and E. Goddard, Newgate Street, wine merchant, Feb. 1
Draper, J. Sheard Street, London, cabinet maker, Jan. 29
Ray, W. Cheapside, man's mercer, Feb. 2
DeLancy, W. Liverpool, linen draper, Feb. 7
Edwards, Miles, Bush lane, London, Jan. 28
Evans, J. Wapping, linen draper, Jan. 29
Emmett, J. H. J. Brown, and F. Brown, Old Jewry, wine merchant, Feb. 8
Fell, T. Liverpool, merchant, Jan. 26
Fend, E. and W. Robinson, Henrietta Street, Covent Garden, linen draper, Feb. 12
Grant, J. Lawrence Pottery lane, London, Jan. 22
Gillman, T. Norwich, linen draper, Feb. 28
Gilliam, G. Charing Cross, victualler, Feb. 5
Gould, Henry Bonin, New Broad Street, furniture painter, Feb. 20
Gardner, F. Great St. Helen's, underwriter, Feb. 8
Gerrard, J. Cannon Street, corn factor, Feb. 8
Heiderston, J. Long Acre, Jan. 25
Haubell, J. Sheffield, grocer, Jan. 19
Heynes, T. Chipping Norton, mercer, Jan. 18
Hennessy, R. Dorset Street, Newbury, Jan. 24
Henwood, J. Canterbury, vintner, Jan. 21
Hilton, A. Liverpool, linen and woollen draper, Jan. 29
Howard, Culmo, Gordon, Conduit Street, London, milliner, Feb. 5
Hayman, J. Old City Chambers, Bishopgate Street, London, merchant, Feb. 26
Joins, Samuel, Plymouth Dock, Taylor, Feb. 24
Irwin, Kingston-upon-Hill, baker, Jan. 23
Johnson, Mary and William Johnson, Augmentin 6, shopkeeper, Jan. 29
Jackson, J. Manchester, muslin manufacturer, Feb. 11
Kirby, G. Bristol, tea dealer, Feb. 3
Lawson, J. Montague Street, London, chair maker, Jan. 21
Lawless, William, New Inn, Middlesex, money scrivener, Jan. 29
Lewis, S. Southampton, victualler, Feb. 5
Ludby, W. Petworth, shopkeeper, Feb. 8
Leaver, T. Manchester, cotton manufacturer, Feb. 12
Malby, T. and G. Malby, Sze lane, London, Jan. 22
Mack, J. Cheapside, by maker, Jan. 21
Martyn, J. Houghton Street, Clare Market, whalebone cutter, Feb. 12
Norton, J. Drury lane, Jan. 22
Nelbitt, J. E. Stewart, and J. Nelbitt, London, merchants, Jan. 21
Pringle, J. Wardour Street, Jan. 29
Parker, T. Lancaster, merchant, Jan. 20
Ponney, W. Sedmere, corn factor, Jan. 24
Phillips, C. Holborn, merchant, Jan. 24
Panter, W. Mansell Street, Goodman's Fields, broker, Feb. 22
Prowett, D. Bromfrove, grocer, March 2
Fourtales, Andrew, Paul, and Andrew George Fourtales, Broad Street, merchant, Feb. 12
Ricketts, J. Bristol, by maker, Jan. 21
Reed, W. Barking Church Yard, Tower Street, London, Jan. 15
Roberts, W. Surrey Road, London, baker, Jan. 15
Rogers, J. R. Bake, and J. Furnell, insurance brokers, Jan. 18
Ruile, E. Maldstone, hop merchant, Jan. 24
Rawling, T. Liverpool, merchant, Jan. 26
River, G. Old Bailey, London, printer, Feb. 12
Sharrard, J. Cockspur Street, London, linen draper, Feb. 5
Smith, J. Wouwich, hawker, Jan. 21
Smith, T. Manchester, liquor merchant, Jan. 26
Spiet, T. Gloucester, merchant, Jan. 24
Steele, J. A. Birmingham, merchant, Feb. 14
Stokers, G. F. Parson's Green, Fulham, Feb. 5
Thomson, T. and G. Nicholson, Liverpool, merchants, Jan. 26
Thomas, Richard King, mercer, Kewham, Feb. 3
Tripp, J. Bristol, fileman, Feb. 2
Tauby, J. DeLborough, Northampton, butcher, Feb. 28
Thorn, M. and A. Great Nones, Gofwell Street Road, London, tanners, Feb. 12
Wright, J. Liverpool, Jan. 13
Watson, W. Fenchurch Street, London, merchant, Jan. 22
Williams, H. Crickwell, money scrivener, Jan. 18
Wright, G. Worcester, glover, Jan. 25
Well, D. Windsor, coal merchant, Jan. 25
Watson, J. Breckfield, corn merchant, Jan. 31
Woodbridge, S. New Brentford, Ratton, Jan. 25
Wallace, J. Upper Marylebone Street, carriage maker, Feb. 2
Watkins, W. Raven row, Spital fields, Jan. 2
Wright, A. Bristol, corn factor, Jan. 24

A TABLE of the Prices of STOCKS in January, 1863.

Days	Bank	3 per Ct.	4 per Ct.	5 per Ct.	6 per Ct.	Long	Short	Imp.	Imp.	India	Omnium.	Exch.	Consols	Tickets
Dec.	Stock.	Rd.	Consols.	Navy.	Loyalty	Ann.	Ann.	3 per Ct.	Ann.	Stock.		Brit.	for Act.	
29	187	71 1/2	86 1/2	Shut	101 1/2	20 5-16	4 1/2	70 1/2	11 1/2	210 1/2	4 1/2	73 1/2	17 15	15
30	187	71 1/2	86 1/2	Shut	101 1/2	20 5-16	4 1/2	70 1/2	11 1/2	207	4 1/2	73 1/2	17 15	15
31	187	71 1/2	86 1/2	Shut	101 1/2	20 5-16	4 1/2	70 1/2	11 1/2	207	4 1/2	73 1/2	17 15	15
1	187 1/2	71 1/2	86 1/2	Shut	101 1/2	20 5-16	4 1/2	70 1/2	11 1/2	207	4 1/2	73 1/2	17 15	15
2	187 1/2	71 1/2	86 1/2	Shut	101 1/2	20 5-16	4 1/2	70 1/2	11 1/2	207	4 1/2	73 1/2	17 15	15
3	187 1/2	71 1/2	86 1/2	Shut	101 1/2	20 5-16	4 1/2	70 1/2	11 1/2	207	4 1/2	73 1/2	17 15	15
4	187 1/2	71 1/2	86 1/2	Shut	101 1/2	20 5-16	4 1/2	70 1/2	11 1/2	207	4 1/2	73 1/2	17 15	15
5	187 1/2	71 1/2	86 1/2	Shut	101 1/2	20 5-16	4 1/2	70 1/2	11 1/2	207	4 1/2	73 1/2	17 15	15
6	187 1/2	71 1/2	86 1/2	Shut	101 1/2	20 5-16	4 1/2	70 1/2	11 1/2	207	4 1/2	73 1/2	17 15	15
7	187 1/2	71 1/2	86 1/2	Shut	101 1/2	20 5-16	4 1/2	70 1/2	11 1/2	207	4 1/2	73 1/2	17 15	15
8	187 1/2	71 1/2	86 1/2	Shut	101 1/2	20 5-16	4 1/2	70 1/2	11 1/2	207	4 1/2	73 1/2	17 15	15
9	187 1/2	71 1/2	86 1/2	Shut	101 1/2	20 5-16	4 1/2	70 1/2	11 1/2	207	4 1/2	73 1/2	17 15	15
10	187 1/2	71 1/2	86 1/2	Shut	101 1/2	20 5-16	4 1/2	70 1/2	11 1/2	207	4 1/2	73 1/2	17 15	15
11	187 1/2	71 1/2	86 1/2	Shut	101 1/2	20 5-16	4 1/2	70 1/2	11 1/2	207	4 1/2	73 1/2	17 15	15
12	187 1/2	71 1/2	86 1/2	Shut	101 1/2	20 5-16	4 1/2	70 1/2	11 1/2	207	4 1/2	73 1/2	17 15	15
13	187 1/2	71 1/2	86 1/2	Shut	101 1/2	20 5-16	4 1/2	70 1/2	11 1/2	207	4 1/2	73 1/2	17 15	15
14	187 1/2	71 1/2	86 1/2	Shut	101 1/2	20 5-16	4 1/2	70 1/2	11 1/2	207	4 1/2	73 1/2	17 15	15
15	187 1/2	71 1/2	86 1/2	Shut	101 1/2	20 5-16	4 1/2	70 1/2	11 1/2	207	4 1/2	73 1/2	17 15	15
16	187 1/2	71 1/2	86 1/2	Shut	101 1/2	20 5-16	4 1/2	70 1/2	11 1/2	207	4 1/2	73 1/2	17 15	15
17	187 1/2	71 1/2	86 1/2	Shut	101 1/2	20 5-16	4 1/2	70 1/2	11 1/2	207	4 1/2	73 1/2	17 15	15
18	187 1/2	71 1/2	86 1/2	Shut	101 1/2	20 5-16	4 1/2	70 1/2	11 1/2	207	4 1/2	73 1/2	17 15	15
19	187 1/2	71 1/2	86 1/2	Shut	101 1/2	20 5-16	4 1/2	70 1/2	11 1/2	207	4 1/2	73 1/2	17 15	15
20	187 1/2	71 1/2	86 1/2	Shut	101 1/2	20 5-16	4 1/2	70 1/2	11 1/2	207	4 1/2	73 1/2	17 15	15
21	187 1/2	71 1/2	86 1/2	Shut	101 1/2	20 5-16	4 1/2	70 1/2	11 1/2	207	4 1/2	73 1/2	17 15	15
22	187 1/2	71 1/2	86 1/2	Shut	101 1/2	20 5-16	4 1/2	70 1/2	11 1/2	207	4 1/2	73 1/2	17 15	15
23	187 1/2	71 1/2	86 1/2	Shut	101 1/2	20 5-16	4 1/2	70 1/2	11 1/2	207	4 1/2	73 1/2	17 15	15
24	187 1/2	71 1/2	86 1/2	Shut	101 1/2	20 5-16	4 1/2	70 1/2	11 1/2	207	4 1/2	73 1/2	17 15	15
25	187 1/2	71 1/2	86 1/2	Shut	101 1/2	20 5-16	4 1/2	70 1/2	11 1/2	207	4 1/2	73 1/2	17 15	15
26	187 1/2	71 1/2	86 1/2	Shut	101 1/2	20 5-16	4 1/2	70 1/2	11 1/2	207	4 1/2	73 1/2	17 15	15
27	187 1/2	71 1/2	86 1/2	Shut	101 1/2	20 5-16	4 1/2	70 1/2	11 1/2	207	4 1/2	73 1/2	17 15	15
28	187 1/2	71 1/2	86 1/2	Shut	101 1/2	20 5-16	4 1/2	70 1/2	11 1/2	207	4 1/2	73 1/2	17 15	15

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T. BISH, STOCK-BROKER, Old State-Lottery Office, No. 4, Cornhill, London.

TO OUR CORRESPONDENTS.

WE again beg Agricola Norfolkensis to accept our thanks for his Drawing of the Hertfordshire Turnip Drill; and the paper accompanying it—and shall esteem ourselves equally obliged by receiving any other communication from him.

Wheat & Sheaf's Fourth Essay is inserted; and we hope on the explanation of his proposed system, that the public will be disposed to grant him the patronage which he expects.

A constant Reader will perceive that we have inserted his account of the Grand Junction Canal, &c. although not entirely consistent with the new Title of our Magazine, but as we had given our word to publish it in one of our former Numbers we trust we shall be excused by our Readers.

We with pleasure recognize the signature of our old Friend Practicus; and at the same time take this opportunity to apologize to Dr. Parry, for having omitted to notice his favour of last month.

The Berkshire Farmer's account of Bordley's Implement for sowing Turnip and Clover Seeds Broadcast, arrived too late for this Number.

We are obliged to the Hill Farmer for his paper on Chalk as a Manure, and shall be happy in any future communication of his practice.

Verax will perceive we have omitted his postscript, and we therefore feel ourselves called upon to explain to him as a Correspondent of this Magazine, our motive for so doing. Any comparison between the Agricultural Knowledge of this and any other nation, might, we conceive, appear invidious.

J. W——s favour is received, and we are very thankful for the hints it contains; at the same time we beg to assure him, and all our other commercial readers, every satisfaction in our power; for which purpose, we intend to introduce if possible, on the 1st. of March, a Magazine for the immediate use of our commercial readers.

Our old correspondents whom we have not particularly mentioned; will not, we trust, impute the omission to neglect, as they are equally entitled to our thanks.

THE AGRICULTURAL MAGAZINE.

No. XLIII.

FEBRUARY 1803.

[Vol. VIII.]

DR. DARWIN'S DRILL PLOUGH,

AND

MR. SWANWICK'S SEED BOX.

(WITH A PLATE)

Copied from Dr. Darwin's Phytologia, with permission.

CONSTRUCTION of the carriage part. Fig. 1. *aa* are the shafts for the horse, which are fixed to the centre of the axle tree by a simple universal joint *z*, whence, if the horse swerve from a straight line, or is purposely made to pass obliquely to avoid treading on the rows of corn in hoeing, the person who guides the plough behind may keep the coulter of the plough or hoe in any line he pleases, which is thus performed with much simpler mechanism than that used in Mr. Cook's patent plough for the same purpose, which has many joints, like a parallel rule. *bb* are the horns or shafts behind for the person who guides the drill, coulters, or hoes; they are fixed to the axle-tree before, and have a cross piece about six inches from it at *gg*, for the purpose of supporting the seed box, described below. Behind this, about a foot distant from it, is another cross piece at *cc*, called the coulters beam, which is fifty inches long, six inches wide, and two inches thick; it is perforated with two sets of square holes, six in each set, to receive the coulters in drill ploughing, and the hoes in horse hoeing. The six light square holes are nine inches from each other, and are to receive the coulters or hoes in the cultivation of wheat, the rows of which are designed to be nine inches from each other; and the six dark square holes are placed seven inches from each other to receive the coulters or hoes for the cultivation of barley, the rows of which are designed to be but seven inches distant from each other. Besides these, there are six round holes through this coulters beam at one part of it, and six iron circular staples fixed into the edge of the other part of it; these are to receive the ends of the tin flues which cross each other, and convey the seed from the bottom of the seed box into the drills or furrows, when the coulters are disposed in the square perforations before them. These coulters or hoes, the person who guides the machine can raise out of the ground in turning at the ends of the lands; or in passing to or from the field, and can suspend them so raised on the iron springs *dd*, which, at the same

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time, so fixes the shafts to the axle-tree, that the wheels will then follow in the same line with the horse. *ee* are wheels of four feet in diameter, the nave of one of which has on it a cast iron wheel at *ff*, for the purpose of turning the axis of the seed box, which has a similar wheel of one-fourth its diameter, whence the axis of the seed box revolves four times to one revolution of the wheel.

Construction of the seed box. This consists of boards about an inch in thickness, is forty-eight inches long within, twelve inches deep, twelve inches wide at top, and six inches wide at bottom; it is divided into six cells, in which the corn is to be put, as represented in Fig. 2. and should also have a cover with hinges to keep out the rain, and is to be placed in part over and in part before the axle-tree of the carriage at *gg*, Fig. 1. Beneath the bottom of the seed box passes a wooden cylinder at *hh*, Fig. 2. with excavations in its periphery to receive the grain from the six cells of the seed box *l, m, n, o, p, q*, and to deliver it into the six oblique flues *ii*, which are made of tin, and cross each other, as represented in the plate. The use of the seed flues thus intersecting each other is to increase the length of the inclined surface on which the seed descends, that if six or eight grains be delivered together, they might separate by their friction in descending, as not to be sown together in one point, which might be liable to produce tussocks of corn. As these seed flues cross each other before they pass through the coulter-beam at *cc*, Fig. 1. it was necessary to make three of the round holes of the coulter-beam at one end backward than those at the other, and on that account to use iron staples or rings at one end instead of perforations, as at *ww*, Fig. 1. These tin flues deliver the seed at the time of sowing into the small furrows or drills, which are made by the coulters before them. These seed flues have a joint at *zz*, where one part of the tin tubes slides into the other part, and they by this means can be occasionally shortened or lengthened to accommodate them to the coulters when placed at seven inches distance for sowing barley, or at nine for sowing wheat. At the bottom of this seed box are six holes, one in each cell, to deliver the corn into the excavations of the cylinder which revolves beneath them. These holes are furnished on the descending side as the cylinder revolves with a strong brush of bristles about three-fourths of an inch long, which press hard on the tin cylinder: on the ascending side of the revolving cylinder, the holes at the bottom of the seed box are furnished with a piece of strong shoe-sole leather which rubs upon the ascending side of the cylinder. By these means the corn, whether beans or wheat, is nicely

delivered as the axis revolves, without any of them being cut or bruised.

Construction of the iron axis and wooden cylinder beneath the seed box. An iron bar is first made about four feet six inches in length and an inch square, which ought to weigh about fifteen pounds. This bar is covered with wood so as to make a cylinder four feet long and two inches in diameter, as at *kk*, Fig. 3. The use of the iron bar in the centre of the wood is to prevent it from warping, which is a matter of great consequence. This wooden cylinder passes beneath the bottom of the seed box, and has a cast iron cog-wheel at one end of its axis, as at *rr*, which is one-fourth of the diameter of the correspondent cast iron wheel, which is fixed on the nave of the carriage wheel, as at *ff*, Fig. 1. so that the axis of the seed box revolves four times during every revolution of the wheels of the carriage. In the periphery of this wooden cylinder are excavated four lines of holes, six in each line, as at *n, n, n, n, n, n*; a second line of excavation is made opposite to these on the other side of the cylinder, and two other lines of excavations between these; so that there are in all twenty-four excavations in the wooden part of this axis beneath the seed box, which excavations receive the corn from the seed cells as the axis revolves and deliver it into the flues shewn in Fig. 2. *ooii*. The size of these excavations in the wooden cylinder to receive the seed are an inch long, half an inch wide, and three-eighths of an inch deep; which are too large for any seeds at present employed in large quantities except beans, but have a method to contract them to any dimensions required, by moving the tin cylinder over the wooden one, as explained below.

Construction of the tin-cylinder. *AB* at Fig. 4. represents a cylinder of tin an inch longer within than the wooden cylinder on the iron axis at Fig. 3. and is of two inches diameter within, so as exactly to receive the wooden cylinder, which may slide about an inch backwards or forwards within it. *CD*, are two square tin sockets fixed on the ends of the tin cylinder to fit on the square part of the iron axis which passes through the wooden cylinder at *ll* Fig. 3. on which they slide one inch backwards or forwards. The following directions in making the holes in this tin cylinder, and those in the wooden cylinder which are to correspond with them, must be nicely attended to,--*First*, when the tin cylinder is soldered longitudinally, and one end of it soldered on as at *A*, six holes through it must be made longitudinally, on four opposite sides to it; each hole must be *exactly half an inch wide, and five-eighths of an inch long*; the length to be parallel to the length of the cylinder. The

center of the first of these holes must be five inches distant from the closed end A; the center of the second hole must be eight inches distant from the center of the first; and so on till six holes are made longitudinally along the cylinder. Then another such line of six similar holes is to be made on the opposite side of the cylinder, and then two other such lines between the former, in all twenty-four; and the size of all these holes must be nicely observed, as well as their distances.—*Secondly*, the wooden cylinder fixed on the axis is now to be introduced into the tin cylinder, but not quite to the end of it, but so as to leave exactly one inch of void space at the closed end A, and then the size of all these apertures through the tin cylinder, each of which is exactly *half an inch wide and five eighths of an inch long* are to be nicely marked with a fine point on the wooden cylinder, which must not previously have any excavations made in it.—*Thirdly*, the twenty-four holes, thus marked on the wooden cylinder, are now to be excavated exactly *three eighths of an inch deep*, but with an addition also of *three eighths of an inch* at that end of every one of them which is next to A, so that when the wooden cylinder is again replaced in the tin cylinder as before, with one inch of void space at the closed extremity of it; the excavations in the wooden cylinder will be three eighths of an inch longer than the perforations in the tin cylinder over them. These excavations in the wooden cylinder must, also, be rather narrower at the bottom than at the top, to prevent, with certainty, any of the grain from sticking in them as they revolve.—*Fourthly*, a screw of iron about three inches long, with a square head to receive a screw-driver, is to pass through the end A of the tin cylinder on one side of the axis; as at, x. Fig. 4. The screw part of this is to lie in a hollow groove of the wooden cylinder, and to be received in a nut or female screw, which is fixed to the wooden cylinder.—The head part of the screw, which passes through the end A of the tin cylinder at, x. must have a shoulder within the tin cylinder, that it may not come forwards through the end of it; and a brass ring must be put over the square end of the screw on the outside of the tin cylinder, with a pin through that square end of the screw to hold on the brass ring. Thus when the square head of the screw is turned by a screw-driver, it gradually moves the tin cylinder backwards and forwards, one inch on the wooden one, so as either to press the end A of the tin cylinder into contact with the end of the wooden cylinder within it, or to remove it one inch from it, and leave a void space at the end A.—*Fifthly*, the ends of all the holes of the tin cylinder, which are next to the end A, are now to be



enlarged, by slitting the tin *three eighths of an inch* towards A, on each side of the hole; and then that part of the tin, included between these two slits, which will be *half an inch wide*, and *three eighths of an inch* lengthways, in respect to the cylinder, is not to be cut out; but to be bent down into the excavations of the wooden cylinder beneath, so as to lie against the end of the excavation, which is next to A; but these projecting bits of tin before they are bent down into the excavations of the wooden cylinder, must be filed a little less at the projecting end, which is to be bent down, than at the other end; as the excavations of the wooden cylinder are to be rather narrower at the bottom than at top, and these pieces of tin when bent down must exactly fit them.—*Lastly*, when all these holes through the tin cylinder are thus enlarged, and the bits of tin filed rather narrower at the projecting ends, and then bent down into the excavations of the wooden cylinder, the other end of the tin cylinder with its square socket may be soldered on. And now when the end of the tin cylinder, at A, is pressed forwards upon the wooden cylinder towards B, by turning the screw at x, above described; every excavation of the wooden cylinder will be gradually lessened, and finally quite closed; by which easy means they may be adapted to receive and deliver seeds of any size, from horse beans and peas, to wheat, barley, and turnip seed, with the greatest accuracy, so as to sow four, five, or six pecks on an acre, or more or less, as the agricultor pleases, by only turning the screw a few revolutions one way or the other.

Observations. 1. In the construction of the tin and wooden cylinders beneath the seed box, another small improvement may be necessary in sowing very small seeds, which is thus:—as the screw of the end, or A; is turned so as to contract all the excavations of the wooden cylinder—the surface of the wooden cylinder, for one inch from the end of each excavation, towards the end B, Fig. 4. will become bare without being covered by the tin cylinder; and on these bare parts of the wooden cylinder, which will be one inch long and half an inch wide, some small seeds may chance to stick and evade the brushes, which should prevent them from passing as the cylinders revolve—to prevent this, when the wooden cylinder is so placed within the tin cylinder, that all the holes are quite open, let a piece of the tin cylinder about an inch and an half long, and half an inch wide be cut out from the extremity of each hole next to the end B; and let this piece of tin cylinder thus cut out, be fixed by a few sprigs on the wooden cylinder, exactly in the same place which it covered before it was cut out of the tin one; by which contrivance, when the tin

cylinder is afterwards pushed forwards by turning the screw at its end, so as to contract the excavations of the wooden cylinder beneath, the bare parts of the wooden cylinder will exist an inch and an half from the extremities of the excavations next to the end B; and thus will not pass under the brushes, and in consequence no small seeds can lodge in them.

2. Some kind of iron staple should be fixed at each end of the seed box on the outside, which when the hinder part of the carriage is raised up by the person who guides it, might catch hold of the two iron springs, at dd. Fig. 1. for the purpose of suspending the coulters out of the ground, and connecting the hinder part of the machine with the shafts before; that in turning at the ends of the lands, or in passing from or to the field, the wheels may not swerve at the joint Z, at the centre of the axle tree, but may follow in the same line with the shafts.

3. The seed-box must also be supported on upright iron pins passing through iron staples, with a lever under the end of it, next to the wheel rr. Fig. 3. for the purpose of easily lifting that end of the seed-box, about an inch high, to raise the teeth of the iron cog-wheel on its axis, out of the teeth of the correspondent iron wheel on the nave of the carriage wheel.

4. The construction of the coulters which make the drills, and of the rakes which again fill them, after the seed is deposited; and also of the hoes are not here delineated, as they are similar to those so often described or used by Mr. Tull and his followers.

When the holes in the wooden cylinder are completely open, they are a proper size for sowing horse beans or peas; when they are completely closed, there will remain a small niche at the end of the excavation in the wooden cylinder next to B, Fig. 4. for turnep seed or other small seeds.

For wheat, barley, and oats, a wooden wedge should be made of the exact shape of the hole, which the director of the plough requires; who will occasionally insert it into the holes, when he turns the screw at the end of the cylinder, to enlarge or to lessen them, to these exact dimensions.

These wedges should be written upon, with white paint, wheat, barley, oats, &c. which will much facilitate the adapting the size of the excavations to each kind of grain, and may be altered, to suit larger or less seeds.

In some drill ploughs, as in Mr. Cook's, there is additional machinery to mark a line as the plough proceeds, in which the wheel nearest the last sown furrow may be directed at a proper distance from it and parallel to it: but in sowing wheat, or peas and beans, this may be done by making the

wheels, as they run upon the ground, to be exactly fifty-four inches from each other; and then at the time of sowing, to guide the wheel next to the part last sown exactly in the rut which was last made, by which guide the rows will all of them be exactly nine inches distance from each other.

The simplicity of this drill plough consists, first, in its having only a seed box, and not both a hopper and a seed box, as in the Rev. Mr. Cook's patent drill plough.—*Secondly*, the flues which conduct the seed from the bottom of the seed box into the drill furrows, are not disjointed about the middle of them to permit the lower part to move to the right or left when the horse swerves from the line in which the coulter passes, as in Mr. Cook's patent drill plough, which is done in this machine by the simple universal joint at z, Fig. 1.—*Thirdly*, in this machine the horns or shafts behind, between which the person walks who guides the coulters, are fixed both to the coulters beam and to the axle tree; whereas, in Mr. Cook's patent plough, there are all of them moveable joints like a parallel rule, for the purpose of counteracting the swerving of the horse, which is also done in this machine at the universal joint z.—*Fourthly*, the altering the dimensions of the holes in the axis of the seed box by only turning a screw, so as to adapt them to all kinds of seeds which are usually sown on fields.—*Fifthly*, the strong brushes of bristles, which sweep over the excavations of the cylinders beneath the seed box, strickle them with such exactness, that no supernumerary seeds escapes, and yet none of them are in the least bruised or broken.—*Lastly*, it should be observed, that the less expence in the construction, the less propensity to be out of repair, and the greater ease of understanding the management of this machine, correspond with its greater simplicity, and will, it is hoped, facilitate the use of the drill in husbandry.

Mr. Swanwick's Seed Box.

The seed box is forty-eight inches long within, is divided into six cells for the purpose of sowing six rows of seeds at the same time. At the bottom of each cell is a hole aa, Fig. 5. for the seed to pass through into the seed flues, as in the machine before described: but in this there is no revolving axis, but a wooden bar BB, Fig. 7. about two inches broad, and about four feet eight inches long, and *exactly* three-eighths of an inch thick. Through this bar there are six perforations, e, e, e, &c. which are each of them exactly one inch long and half an inch wide; and three eighths of an inch deep, which is the thickness of the bar. The centres of these holes are exactly eight inches distant from each other, correspondent to the holes at the bottom of the seed box, over which it is made to slide backwards and forwards

in a groove; by this sliding motion it passes under stiff brushes, which are placed over it on each end of the holes at the bottom of the seed box, and strickle off the grain as the holes in the sliding bar pass under them, which thus measure out the quantity with considerable accuracy.

In order to increase or diminish the quantity of grain delivered, the slide is covered with a case of tin CC, Fig. 8. which has six perforations, exactly corresponding with the holes in the slider; but instead of the bit of tin being cut out the whole length of the hole, part of it is left at the end i, Fig. 10. equal to the thickness of the slider, and is bent down as at b, after the slider is put into the case, like the tin cylinder in the preceding machine. This case is moveable about one inch backward and forward by turning the finger screw s, 8. and 9. and thus the holes are made larger or less to suit various sorts of grain, or different quantities of the same sort, exactly as in the preceding wooden and tin cylinder. The slider is moved forwards by a bent iron pin h attached to it, which passes into a serpentine groove Y, Fig. 9: fixed to the nave of the wheel; and backwards by a steel spring at the other end of the seed box, which is not represented in the plate.

Fig. 9. is a bird's eye view of the parts before described. EE, the seed box divided into cells by the partitions dd, &c. ccc the slider with a part of the apertures seen just appearing from under the brushes, X the axis of the wheel.

Fig. 10. is a drawing of part of the tin case, and is intended to show more distinctly the construction of it.

Fig. 6. represents a side view of one of the six bridges lying over the holes at the bottom of the seed box, on each side of which the brushes are fixed, which strickle the holes when they are full of corn as the bar slides backwards and forwards.

The simplicity of this slider at the bottom of the seed box may be in some respects greater than that of wooden and tin cylinders in the former machine; as this has but six holes to measure out the corn, and the other has twenty-four: but, perhaps, in other respects, less so, as in this twelve brushes are used, one on each side of each of the six holes, whereas there are only six brushes rub upon the tin cylinder in the former machine. And the reciprocating motion of this slider must be quick, as it must act once every time the periphery of the wheel of the carriage has passed nine inches forward, which may not be so easy to execute as the cog wheel and uninterrupted movement of the axis and cylinder in the preceding machine.

REMARKS ON MR. CLOSE AND MR. AMOS'S ACCOUNT OF
PROFITS IN PURSUING THE DRILL SYSTEM, OR ROW
CULTURE.

To the Editor of the Agricultural Magazine.

SIR,

Fakenham, Feb. 9, 1803.

AT a season of the year when the severity of the weather causes almost every agricultural pursuit to be at a stand, even the most strenuous opposers of theory, who are satisfied with no arguments but those of downright practice, will perhaps allow the speculative agriculturist to make an experiment or two, by his fire-side, with such implements as he has within his reach, viz. pen, ink and paper.

Such is frequently my amusement, when confined at home: and the pleasure I receive from such sort of employment, has of late been much increased by the addition of "The New Farmer's Calendar" to my store of books on agricultural subjects. A more powerful advocate for the new system of tillage, I believe, could scarcely have been found, had the author been a little more guarded in his selection of experiments, to prove the superiority of his favourite system. At present, I fear, his zeal to display what he calls *Row-culture* in its best colours, has led him to quote examples from the Bath papers, rather too highly painted, and thereby has injured, more than served, the cause he would recommend.

By way of proof, let us try one or two of the cases which he has selected. At page 358, appears a paper, written by the Rev. Mr. Close, setting forth how great the saving may be, in the article of seed corn only, on 131 acres of land, where drilling takes place of the broadcast method of sowing. To place the comparison in the stronger light, Mr. Close has certainly taken a few liberties with regard to the quantity of seed, drilled or sown by hand, which the general practice throughout England does not warrant, however the actual experiment may have been made by Mr. Close himself. As for instance: the broadcast account is charged with seed peas at the highest possible rate of *four bushels* per acre, while the drill is modestly content with *one* only. Be the soil what it may, I contend that one bushel is too little, and I calculate thus: one pint contains 1600 peas; one bushel, therefore, has 102,400. Now, an acre of land contains 80 drills, each 242 yards long, at nine inches intervals, or 19,360 yards, to be sown with 102,400 peas, i. e. very little more than five in a yard: and if in drills, 12 inches asunder, there will then be but seven in a yard. A very sparing seed indeed. Nay, granting somewhat more than 1600 in a pint, as would be the case with

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smaller kind of peas, the number in a yard would still prove too few. In like manner Mr. C. allots *three bushels* of seed wheat to an acre sown by hand; which quantity is very seldom used by any broadcast husbandman, ten pecks being a more usual allowance; and *é contra*, he asserts that his drills make *three pecks* sufficient for the same space of ground. I would ask Mr. C. why he charges the broadcast account with the same quantity of early peas per acre (*viz.* four bushels) as of the other kinds, when he drills *three pecks* only of the former sort, and *four* of the latter? Nor can I conceive how the drill should make three pecks suffice for an acre; for, by a similar calculation to the former, I find that nine inch intervals give not quite four, and even 12 inch intervals but (barely) five peas to a yard. But few readers, I fancy, will assent to Mr. C.'s assignment of one bushel only of oats or barley to an acre: (Mr. Amos, who is equally strenuous for drilling, does not attempt to get on less than 12 pecks of oats and seven of barley, as may be observed at page 349.) but every one must take notice, that Mr. C. loses no opportunity of saddling the unhappy broadcast account with the fullest quantities; all peas and oats at four bushels, and vetches at three bushels per acre; an allowance, I believe, never exceeded. From these premises the conclusion he draws is by no means surprising, *viz.* that on 131 acres of land under corn, the drill saves so considerable a sum as 100*l.* 4*s.* And if I also may be allowed to hazard a conclusion from the aforesaid premises, it would be this—That any plain, plodding Farmer of the old school, reading this statement, will lay down the book unconvinced, and more than ever resolved to pursue the *old* practice; and for this plain reason, because he every where finds the new system, and therefore concludes it can only be defended by extravagant and improbable assertions.—The experiments made by Mr. Amos are certainly no bad proofs of the advantage of drilling on various soils above broadcast sowing; but even here some things occur which are calculated to create a suspicion, that while the former stands full in favour, he seizes every occasion of placing the latter in too unfavourable a light. Take the first experiment here quoted. The land in preparation for drilling requires, by his account, but *five* harrowings, the other is put to the expence of *eight*. Mr. A. can horse-hoe an acre of land *twice* for 4*s.* and cannot get his broadcast acre hand-weeded for less than 5*s.* 6*d.* The produce of the drilled crop he estimates worth 2*s.* 3*d.* per bushel, the other it seems is so inferior in quality as not to be worth more at market than 2*s.* 2½*d.*; and thus is *squeezed* out a balance in favour of the former of 1*l.* 3*s.*

I shall pursue the examination no further, and only observe in general, that the same partiality is but too visible in almost

every example selected by late writers on agriculture. For my own part, being fully convinced of the superiority of the drill-culture above every other yet known, partly from my own very confined experience, but in a much greater degree from the repeated trials made by gentlemen in this neighbourhood, on whose assertions I can rely, I most heartily wish it the notice it merits, and therefore regret that any of its supporters should have recourse to *little arts* for swelling the amount of profit above its just limits. One fair comparative statement would do more towards converting a disciple of the old husbandry to the new method, than a multitude of examples, where partiality leads the proposer to add on the one side, or diminish on the other, as best suits his purpose of recommending and supporting his favourite system. I should here close a letter, already too long, but I am unwilling to take leave of the subject without adding a word of apology to a very worthy man, and respectable member of society, the Rev. Mr. Close, to whose unwearied exertions the republic of agriculture stands deeply indebted. If I have made use of any too free expression, I request that your readers will not construe it as implying the smallest doubt on my part of the accuracy of this gentleman's statement.

I only request leave to withhold my assent to the sufficiency of seed which Mr. Close has chosen to allot to his land, and in this opinion I am confident I shall not be singular.

I am, Sir, &c.

AGRICOLA NORFOLCIENSIS.

P. S. I have given fair trial to M^r Dotgate's hoe; on the lightest soil it is too hard labour even for men, much more for boys or girls to perform. I acknowledge that a drawing of this hoe, in the British Encyclopædia, gave me the first hint of the single-shared horse-hoe, which appears in a former Number of your Magazine, and which I again beg leave to recommend, the ensuing spring, to the trial of some of your readers; confident that if used either among beans, peas or wheat, is it superior in efficacy to any implement of the kind yet in use.

Erratum.—In the last Number, page 6, for *sowing seed*, read *saving seed*.

ON AN INSTRUMENT FOR SOWING SMALL SEEDS BROADCAST.

To the Editor of the Agricultural Magazine.

SIR,
YOUR valuable Correspondent, Agricola Norfolciensis, has in your 41st Number given us a clear and perfect description of a very simple, yet effectual machine for sowing

Turnip Seed in drills; such a machine is much wanted for those who pursue the drill system, because attended with little expence, and so little complicated in its construction, as to be easily made or repaired by any common workman. Notwithstanding the evident superiority of a drilled crop of turnips, over one broadcast; there are Farmers still to be found, who give the preference to the old method; and as it must have forcibly struck the observation of every agriculturist, that the method of sowing by hand such small seeds as turnips and clover, must be imperfect, it is matter of astonishment, that there has not yet been found a single mechanic in this kingdom, who has ever turned his attention to the construction of some simple cheap instrument for sowing these small seeds broadcast. A person at Dover, whose name I do not recollect, took out a patent for a sowing machine, to sow either in drills or broadcast, but although it might perhaps answer the purpose tolerably well, its price (11 or 12 guineas) deterred most common Farmers from purchasing it. On looking over Bordley's Notes on Husbandry and Rural Affairs,* I was agreeably surprised to find the very thing I had so long wished for, viz. a most simple cheap machine for sowing small seeds broadcast, with a degree of regularity unattainable by the best seedsman, but as any description of mine would fall far short of Mr. Bordley's, I send you a copy of it in his own words. "A box for sowing clover seed on wheat *beds*, (rather than *ridges*), seven feet wide, including the water or opening furrow, was made of light half inch planks, for the sides, bottom, and partitions; it was seven feet long, five or six inches wide, that the seed lying thin might easily shift about and not press heavily on the outlet holes; it was three inches deep, and divided into seven parts, each division having two holes bored through the bottom half an inch diameter, and placed diagonally. The holes were singed with an hot iron rod to smooth them. Square pieces of strong writing paper were pasted over the holes on the inside of the box; an hole was burnt with coarse knitting needles through each paper, and trials were made with seed, gently shaken in the box over a floor, and the holes enlarged as far as might be occasion, for dropping a due quantity of seed. It was used for sowing turnip seed; the old papers being taken off and new ones pasted on, and then holes burnt suitable to clover seeds; at about a third of the distance from each end of the box, were fastened strong leather straps, by which the box was held, and a little agitated, in carrying it before the seedsman, in a direction crossing the beds, whilst the seedsman walked along them."

* Philadelphia, printed by Budd and Bartram, 1799.

The above instrument is calculated both as to price and simplicity of mechanism for the pockets of the poorest Farmer, and the capacity of the dullest mechanic, and I most sincerely wish Agricola Norfolciensis may introduce a drill, which will answer the end as well as this, and come proportionably at as low a price.

I am Sir, your humble servant,

A BERKSHIRE FARMER.

For the Agricultural Magazine.

ON EVERLASTING PEAS AS A FOOD FOR HORSES AND CATTLE. COMMUNICAED BY MR. RICHARD WESTON, SECRETARY TO THE LEICESTER AGRICULTURAL SOCIETY.

TARES and Vetches are plants of which horses are very fond, and are cultivated with great advantage for that purpose.

The everlasting peas belong to the same class of plants; are much more luxuriant in their growth, and yet are not cultivated, except for ornament.

These plants are well known, and may be found in the gardens of almost every village in the kingdom. The luxuriance of their growth is so great, that the narrow-leaved, *lathyrus, sylvestris*, grows to the height of five or six feet, the other, *lathyrus, latifolius*, to eight, ten, or more. They begin to vegetate early in the spring, and continue growing until severe frosts stop them.

Another peculiar advantage belonging to them, is, that they are *perennial-rooted plants*, and when once sown, improve in their vigor and growth, after the first year, and continue increasing for several successive ones, as may readily be proved by examining the gardens in which they are to be found, where seed may be had, and tried at first upon a small scale, with very little trouble and expence, and afterwards increased.

A rood of land, light and but poor in quality, was sowed with it, early in the spring; the land prepared as for barley. A slight furrow was drawn with a light plough, and the seed thinly dropped into it. Another was drawn at a foot distance, and the seed dropped in like manner.

An interval was then left at least two feet wide; then two more rows, till the whole was sown. The seed was afterwards covered by drawing a light harrow with wooden tines, backwards and forwards across the land.

When the plants came up and grew a little strong, they were thinned with a hoe, to a foot distance, that they might have room to spread and branch. The first year they made no great quantity of fodder, but since made ample amends.

The second spring, they came up very strong and vigorous,

branching out very much. A couple of horses were turned in to feed, who were very fond of it, eating it very greedily, though they were taken out of a good natural upland pasture.

The third year the land was almost entirely covered, and it yielded a great deal of food. For experiment a few rods were mowed just before it flowered, which made good hay, sweet without being sticky.

REMARKS.

This experiment is not described longer than the three first years.

Instead of destroying the plants by hoeing them where too thick, I would recommend them to be drawn out, and a fresh plantation made with them. In gardens, they are generally transplanted from the seed beds the second spring.

Instead of turning horses in to feed, I would prefer cutting them either with a scythe or sickle, and have them given to the horses. It would certainly by that method produce more fodder, and you could find how many times in the summer, they would bear cutting, and at what height is the most advantageous to cut them.

If the intervals be left three feet wide, instead of two, there would be room to plant in September and October a winter crop, when the peas cease growing, as boorecola, cabbage plants, &c. which would occupy the ground till March, at which time they begin to vegetate.

RICHARD WESTON,

ON FATTENING SHEEP.

The Editor hopes that the following accurate experiments on Fattening Sheep, made under the inspection of the intelligent Mr. Billingsly, of Ashwick Grove, Somerset, and by him communicated to the Bath and West of England Agricultural Society; will prove acceptable to his Readers, as the most profitable fattening stock is clearly and impartially pointed out.

TWO Farmers of eminent rank in the breeding line, one of whom was a warm partizan in behalf of the new Leicester, and the other of the Cotswold sheep, agreed to submit to the following experiment under my guidance and direction; namely, that two five tooth widders (sheep about 1½ year old) of their respective stocks, should be sent to my farm the ensuing January; that they should be kept together one whole year, be regularly folded every night, and in all respects treated alike. That they should be killed at the Society's annual meeting in December, and that a public testimony should be given of the merit or demerit of each.

A trial so far could not fail attracting the notice of all persons interested in the event, and a proposal was made and seconded, that other sorts of sheep to which any of the com-

pany might be partial, should be added for the purpose of ascertaining their respective merits.

Accordingly six sorts were sent, viz.

- 5 Leicester, from Mr. More, of Chalcote, Warwickshire.
- 5 Cotswold, from Mr. Pacey, of Northleach, Gloucestershire.
- 5 South Down, from Mr. Gale, of Stert, Wilts.

15 of the polled breed.

- 5 Dorset, from Mr. Hix, Castle Cary, Somerset.
- 5 Wilts, from Mr. Tinker, Chittern, Wilts.
- 5 Mendip, from Mr. Parsons, Blagdon, Somerset.

15 of the horned breed.

With a view of proceeding regularly and impartially in the experiment, the whole lot was weighed after twelve hours confinement without food, and the weighing was continued regularly every Month till the time of their death; the result will appear by the following account:

5 Leicester, their live weight January the 3d 1792, 664 lbs at 3d. amounted in value to 8*l.* 6*s.* 1½*d.* their consumption of food from April the 3d to April the 10th, consisted of cabbages 29 lbs. hay 91 lbs. from June 20th to June 27th; green vetches 840 lbs. from December 1st to December; cabbages 445 lbs. hay 35 lbs.—the weight of wool 39 lbs. 12 oz.—which at 9d. amounted to 1*l.* 9*s.* 10*d.* Their live weight December, 1792, 762 lbs. increase 97½ lbs. dead weight, carcase 426½ lbs. blood 30 lbs. entrails 50½ lbs. fat 51 lbs. heads, &c. 49½ lbs. skins 85½ lbs.—sold at 5d. per lb. for 8*l.* 17*s.* 11*d.*—the wool 1*l.* 9*s.* 10*d.* amounting to 10*l.* 7*s.* 9*d.* deducting the first cost, 8*l.* 6*s.* 1½*d.* the nett produce amounted to 2*l.* 1*s.* 7½*d.* These sheep were in the butcher's phrase good meat.

5 Cotswold, their live weight January 3d, 1792, 697½ lbs. at 3d. amounted in value to 8*l.* 14*s.* 4*d.* their consumption of food from April 3d, to April 10th, consisted of cabbages 29 lbs. hay 120 lbs. from June 20th, to June 27th; green vetches 1050 lbs. from December 1st, to December 8th; cabbages 615 lbs. hay 51 lbs. the weight of wool 36 lbs. 2 oz. which, at 12d. amounted to 1*l.* 16*s.* 0*d.* their live weight December 8th, 1792, 952½ lbs. increase 255 lbs. dead weight, carcase 534 lbs. blood 38½ lbs. entrails 70½ lbs. fat 66½ lbs. heads, &c. 57 lbs. skins 97 lbs. sold at 5d. per lb. for 11*l.* 2*s.* 6*d.* The wool 1*l.* 16*s.* amounting to 12*l.* 18*s.* 6*d.* deducting the first cost 8*l.* 14*s.* 4*d.* The nett produce amounted to 4*l.* 4*s.* 1½*d.* These were not so fat as the Leicester.

4 South Down, (one having died in April,) their live weight January 3d, 1792, 379 lbs. at 3*d.* amounted in value to 4*l.* 14*s.* 9*d.* their consumption of food from April 3d to April 10th, consisted of cabbages 29 lbs. hay 70 lbs. from June 20th to June 27th; green vetches 750 lbs. from December 1st to December 8th; cabbages 388 lbs. hay 41 lbs. The weight of wool 14 lbs. 8 oz. which, at 21*d.* amounted to 1*l.* 5*s.* 4*d.* their live weight December 8th, 1792, 522½ lbs. increase 143½ lbs. dead weight, carcase 307½ lbs. blood 20½ lbs. entrails 40½, fat 37½, head 34½, skins 51½ lbs. sold at 5*d.* per lb. for the wool 1*l.* 5*s.* 4*d.* amounting to 7*l.* 13*s.* 4*d.* deducting the first cost 4*l.* 14*s.* 9*d.* the nett produce amounted to 2*l.* 18*s.* 6*d.* These were good meat.

5 Wilts, their live weight January 3d, 1792, 559½ lbs. at 3*d.* amounted in value to 6*l.* 19*s.* 10*d.* their consumption of food, from April 3d to April 10th, consisted of cabbages 29 lbs. hay 125 lbs. from June 20th to June 27th; green vetches 1035 lbs. from December 1st to December 8th; cabbages 516 lbs. hay 42½ lbs. The weight of wool, 19 lbs. 8 oz. which, at 15*d.* amounted to 1*l.* 4*s.* 4*d.* their live weight December 8th 1792, 860 lbs. increase 300½ lbs. dead weight, carcase, 487 lbs. blood 34½ lbs. entrails 85½, fat 54½, heads 60½, skins 87½, sold at 4*d.* per lb. and something over, for 8*l.* 5*s.* 3*d.* the wool 1*l.* 4*s.* 4*d.* deducting the first cost 6*l.* 19*s.* 10*d.* the nett produce amounted to 2*l.* 9*s.* 9*d.* these were not half fat, and were on that account, sold at 1*d.* per lb. less.

5 Dorset, their live weight January 3d, 1792, 646 lbs. at 3*d.* amounted in value to 8*l.* 1*s.* 6*d.* their consumption of food from April 3d to April 10th, consisted of cabbages 29 lbs. hay 123 lbs. from June 20th to June 27th, 1050 from December 1st to December 8th; cabbages 526, hay 43½. The weight of wool 22 lbs. 12 oz. which, at 14*d.* amounted to 1*l.* 6*s.* 6*d.* their live weight December 8th, 1792, 921½ lbs. increase 229½ lbs. dead weight, carcase 573 lbs. blood 33½, entrails 70½, fat 75½, heads, &c. 60½, skins 92½, sold at 5*d.* per lb. for 11*l.* 3*s.* 9*d.* The wool 1*l.* 6*s.* 6*d.* deducting the first cost, 8*l.* 1*s.* 6*d.* The nett produce amounted to 4*l.* 8*s.* 9*d.* These were good meat.

5 Mendip, their live weight January 3d, 1792, 406½ lbs. at 3*d.* amounted in value to 5*l.* 1*s.* 7*d.* Their consumption of food from April 3d to April 10th, consisted of cabbages 29 lbs. hay 87½ lbs. from June 20th to June 27th; green vetches 870 lbs. from December 1st to December 8th; cabbages 417 lbs. hay 41 lbs. The weight of wool 19 lbs. 8 oz. which, at 15*d.* amounted to 1*l.* 14*s.* 4*d.* their live weight December 8th, 1792, 636 lbs. increase 229½ lbs. dead weight, carcase 370 lbs. blood 26½ lbs. entrails 53 lbs. fat 45 lbs. heads, &c. 45 lbs. skins 73½ lbs. sold at 5*d.* per lb. for 7*l.* 14*s.* 7*d.* the

wool 1*l*. 14*s*. 4*d*. deducting the first cost, 5*l*. 1*s*. 7*d*. The nett produce amounted to 3*l*. 17*s*. 4*d*.* These were but indifferent meat.

RECAPITULATION.

Dorset	-	5.	Sheep paid for 48 weeks	4 <i>l</i> .	8 <i>s</i> . 9 <i>d</i> . or nearly
				4 <i>d</i> . per week per sheep.	
Gloicester	-	5.	Sheep paid for 48 weeks	4 <i>l</i> .	4 <i>s</i> . 1 <i>d</i> . or nearly
				4 <i>d</i> . per week per sheep.	
Mendip	-	5.	Sheep paid for 48 weeks	3 <i>l</i> . 17 <i>s</i> . 4 <i>d</i> . or nearly	
				4 <i>d</i> . per week per sheep.	
South Down	5.	Sheep paid for 48 weeks	2 <i>l</i> .	18 <i>s</i> . 7 <i>d</i> . or nearly	
				3 <i>d</i> . per week per sheep.	
Wilts	-	5.	Sheep paid for 48 weeks	2 <i>l</i> .	9 <i>s</i> . 9 <i>d</i> . or nearly
				2 <i>d</i> . per week per sheep.	
Leicester	-	5.	Sheep paid for 48 weeks	2 <i>l</i> .	1 <i>s</i> . 7 <i>d</i> . or nearly
				2 <i>d</i> . per week per sheep, and 1 <i>s</i> . 7 <i>d</i> . over.	

For the Agricultural Magazine.

ON IMPLEMENTS OF HUSBANDRY.

We think ourselves happy in being able to present to the notice of our readers a Catalogue of the most improved Implements of Husbandry. As the author of the Farmer's Calendar has ever been indefatigable in collecting the best information on that head, and a new edition of that work being in contemplation, we thought it advisable to wait for its publication, not doubting but it would prove highly satisfactory to our readers. Every instrument of the most modern invention down to October, 1802, is there noticed, and from the well known agricultural abilities of the author, we have no fear in vouching for the accuracy of description and properties ascribed by him to each.

THE THRESHING-MILL.

THAT greatest of all modern improvements, was invented in North Britain; the principle on which it acts, to clear the corn from the straw, is not that of beating, but swingling it as with flax, the operation being performed by a cylinder, which moves with an astonishing velocity. These machines are now very general in Scotland, even among the inferior classes of Farmers, being made of various dimensions, and wrought by one, two, or four horses, or by water: their price from 25*l*. to 60*l*. or upwards, when made to clean the corn, which requires more machinery and more room.

Mr. Moody, at Rischolm, Lincolnshire, has a mill constructed by Parsemore, of Sheffield; cost 36*l*. 15*s*. Mr. Young remarks, that all the machines he had before seen,

* Wrong calculation, instead of 3*l*. 17*s*. 4*d*. the amount would be 4*l*. 7*s*. 4*d*. at which rate the Mendip would be more profitable than the Gloucester.

E.

threshed every kind of corn well, excepting barley. Here was, however, a favourable exception: the threshers declared in favour of the machine against themselves. The circumstance upon which the good threshing of barley depends, is the iron covering under which the beating wheel, having six beaters, moves; this in Mr. Moody's is fixed, but the beating wheel admits rising and lowering at pleasure; but a new improvement is to make the iron roof moveable, and the wheel fixed. This iron is so near the beaters that it rubs as well as strikes the grain out. Mr. Young advises a semicircular cast iron to close upon the beating wheel.

AN NEW PORTABLE THRESHING MACHINE is advertised by Lester (see our Number 39) price 30*l*. A singular advantage of this implement is reported lately in the *Annals of Agriculture*. A Farmer threshed and sold all his wheat on a declining market, saving at one stroke money enough to repay the cost of the machine.

PLOUGHS.—Lord Somerville's two ploughs (see Number 39) to be had of M^r Dougale. The double or two furrow plough for light lands, and the single plough for strong soils, or for breaking of lea ground, I apprehend to be the most finished and complete tools of the present time.—The double plough is making its way rapidly, and is particularly well calculated for Berkshire, Essex, Norfolk, and indeed for particular parts of every district. It is best adapted to light and level soils, which are also most suitable to the drill culture. It has been properly observed, that they who determine to adhere to the old custom of driving a great number of horses at plough, should surely adopt the double one, and this seems to be really the case in the midland counties, five horses and one man with a double plough, for it requires no holder, will do as much work, in a tolerable level soil, as two ploughs with their complement of horses, men and boys.

The ploughs in Scotland were formerly long and heavy, but well enough calculated for the powerful draught of four and six horses: of late years Mr. Small, of Ford, has reduced and simplified them. The mould board, now a plate of cast iron, he has modified into such a form of curvature, as to make less resistance to the earth turned up, by which it requires less force to draw it than any other plough known in the country, whilst the furrow itself is gradually laid over to its proper position. This plough has no wheels. Price 40*s*. to 50*s*.

THE KENTISH TURN-WREST PLOUGH.—The beam of oak ten feet long, five inches deep, and four broad; behind is a foot four inches by three and an half, and three feet and a half long, on the tops the handles are placed; the foot is tenoned to the end of the beam, and mortised at the bottom to the end of the chep. Through the beam, at two feet five

inches distance from the foot, is a sheath of oak, seven inches wide, and one and a half thick, which is mortised into the chep in an oblique direction : so that the point of the share is twenty-two inches distant from the beam. The chep to which the share is fixed is five feet long, four inches wide, and five deep. The share is of hammered iron, weight about thirty-two pounds, twenty inches long, and from four inches and a half to seven wide at the point. The upper end of the beam rests on a carriage with two wheels, three feet two inches high. On the axle-tree is a gallows, on which is a sliding bolster to let up and down. Through the centre of the axle is a clasp iron, to which is fixed a strong chain, called a tow, that comes over the beam, so fixed as, by means of notches or a pin, called a cheek, to let the whole plough out a greater length from the axle, thereby letting it down to a greater depth. Price, with every kind of tackle fit for drawing, five guineas.

THE KENTISH PLOUGH is an implement of great strength, adapted to rocky and hilly countries, and to turn the soil to a great depth, and to lay the land quite flat, without any furrow or opening, a great advantage, no doubt, in a dry soil. But in my opinion the use of this huge machine is by far too common and indiscriminate in Kent, and the rejection of the Suffolk two horse whip-rein plough, well calculated for the occasional and even general use in some parts, was a proof of a very considerable fund of prejudice in the minds of the Farmers of that county. They have a foot plough, with a turn-wrest, for breaking up leys. Price 2*l.* 15*s.* Also a swing turn-wrest.

THE OLD HERTFORDSHIRE TWO-WHEEL PLOUGH, with its picked share, and those in common use in Berkshire and Hampshire, are powerful implements, calculated to turn up strong and stony soils : it would be a desirable improvement to lighten them, could that be effected without detracting from their power.

In Staffordshire, besides the two furrow plough, they also use the single wheel plough, finding it very convenient, as it requires no holder, but only a lad to drive the horses, and to turn the plough in and out at the end of the furrow. For the purpose of turning up turf, they make the addition to this plough of an iron plate, called a flay, firmly screwing it to the coulter ; this flay slices off the turf, and turns it into the furrow, where the plough immediately covers it with earth ; from this single operation turf has at once the appearance of a fallow, and they say harrows nearly as well ; it requires an extra horse.

THE LINCOLNSHIRE FEN PLOUGH ; an account of which take in Mr. Young's words, who warrants it a most excellent tool. The mould-board of a good sweep ; the throat, the segment of an ellipsis, and the form of the share of great merit,

always well steeled and sharpened with files the coulter a sharpened steel wheel, it much resembles the Dutch paring plough of the Cambridgeshire fens, deserves attention, and ought to be in the collection of *the Board*. To this plough Mr. Cartwright has affixed a bean drill of great simplicity for drilling upon the center of the proceeding furrow, while the next is turning, it answers well, and drills every year a great extent of land, nor does it require previous tillage upon a stubble.

A TRENCH PLOUGH has lately been introduced in Lancashire, by Mr. Duckitt, jun. It has a skim coulter, by which the surface, if foul, may be turned under, and fresh soil brought up from a depth of ten inches, three horses being employed.

THE MINER, another instrument has been lately introduced. This is a plough-share fixed in a strong beam without mould board, drawn by four or more horses; it follows in the furrow just made by the other plough, and without turning up the substratum, penetrates, and loosens the soil from eight to twelve inches deeper than the plough had before gone, which operation, besides draining the land, causes the water to carry along with it any noxious matter. The subsoil thus loosened, the roots of the plants have room to penetrate a full depth, and the soil itself is amended by being drained and opened to the influence of the air.

In Nottinghamshire, their common tool is the Dutch swing plough, (of which the Yorkshire plough is an improvement,) its bottom is from two to two feet and an half, with a pair of handles; a one wheeled plough is also used with two horses, and a one wheeled drill plough for turnips, much approved.

The late Mr. Chaplin, of Tathwell, Lincolnshire, introduced a one horse plough, which has been tried with success. It appears sufficient on light lands for all purposes, breaking up sward excepted, and makes great dispatch in turnip sowing. It succeeds also on strong land, which has been previously well worked. The drill part of the one wheeled drill plough might be easily adapted to this. These are made by Mr. Watkinson, at Wragby, Lincolnshire.

THE KENTISH NIDGET, called in the West a tormentor, is a horse-hoe, with triangular shares fixed horizontally at the extremities of tines which are driven into a three cornered wooden frame, in cross bars, at the corner, by which the implement is drawn, a wheel is fixed in order to give the coulters their proper depth.

SHIMS, or BROAD SHARES, for cleaning the surface of stubbles, particularly beans and peas to fit them for wheat or spring crops. In the Isle of Thanet, these are made straight and sharp, very strong, four feet in length, and are often hung behind a pair of cart wheels. Elsewhere they are made in the form of a crescent, or of a large prong, with three or

four broad flat tines, and drawn horizontally, with the points forward, which force their way among the flints and loose stones.

THE SCUFFLER OR CULTIVATOR. The teeth intersect as they are but twelve inches from each other, and by intersecting the distance is reduced to six inches, and then the breadth of the shares being full three inches, reduces the intermediate space to so small a dimension, that the whole of the ground is entirely broken up, and answers the purpose not only of ploughing, but harrowing likewise, without cutting the quick-grass roots in two, which is an advantage that ploughing has not. It likewise from the standing forward, and bend of the teeth, brings all the roots up to the surface, which is another advantage that cannot be had from the plough. The reduction of labor is another advantage that belongs to this instrument, as four horses and one man will do from six to seven acres per day, in sand land.

HAYWARD'S EXTIRPATOR. A Mr. Hayward, of Stoke Ash, has invented a machine for destroying weeds and clearing ploughed lands for seed, which, by the experience of four years, is found more effectual than any other instrument used for that purpose. The extirpator, or scalp plough, as it is generally termed, is drawn by two or three horses according to the quality of the land.

(To be continued.)

ON CHEESE MAKING.

To the Editor of the Agricultural Magazine.

SIR,

I AM much pleased to see a letter on Cheese-making, from your Correspondent Verax—having long been of his way of thinking, as to the possibility of making good cheese in every part of the kingdom, although my humble endeavours to persuade my neighbours into the same ideas, have, it must be confessed, been attended with but little success. Mr. Knight certainly lays too great stress on the pasture from which cheese is ordinarily made, and in my opinion, Verax seems to take too little account of it. There is not, however, the smallest room to doubt, but that good cheese may be made every where with proper attention.

The people of Herefordshire, like those of Wales, are so intolerably addicted to bad customs, that any thing like an attempt to improve them in any branch of rural economy, must prove abortive. I here beg leave to be understood, as speaking of the common Farmers. To Gentlemen of education and well known abilities, this cannot of course have the smallest allusion, and as a proof that men, however wrong their modes, are not easily to be turned from them, I beg

to mention an instance which fell immediately under my own eyes.

Having a few years ago purchased a farm in Wales, and deeming myself a tolerable proficient in the knowledge of managing a dairy, (having spent much of my time with a very capital Farmer in Gloucestershire,) I desired several of my neighbours to call in and see our process of cheese making; they came it is true, but I fear, more through curiosity than a wish to improve. They admired every particular part of the dairy management and utensils, seemed to hint at the *trouble of cleanliness*, and that cheeses so made, would spoil before they were *ready*; still, however, resolved to endeavour to overcome local prejudices, when the cheeses were fit to cut, I again asked the same men to call and taste them. They then shifted their ground. The cows were better than theirs, and their feed also, in short, amongst men of such cast, every attempt at improvement must be fertile, and unless my information be incorrect, these observations are equally applicable to the common Herefordshire Farmers.

When the cheese dairy system was first attempted in Wiltshire, it was deemed little short of folly by the whole county of Gloucester, and it was confidently alledged, that the cheese of Wilts could never enter into competition with theirs. The Wiltshire Farmers, well aware that the value of any article generally depended more on its name, than its good quality and intrinsic work, prudently contented themselves with calling their cheese *Gloucester*, and for many years, supplied the London markets with it under that name. Their manufacture was at first doubtless an imitation, and perhaps an humble one, but it is now in the opinion of good judges, at least equal, if not superior to that of the favourite district of Gloucestershire. The hundred of Berkley, in addition to the opinion of Verax, I beg to state, that of Mr. Davis of Longleat, who in his excellent general View of the Agriculture of the county of Wilts, observes, that the system of making cheese as managed in North Wilts, would certainly be of the greatest service in many parts of the kingdom, if it could be introduced into them, and that *the production of good cheese in that district, from land totally dissimilar, shews that the goodness of the article does not depend so much on soils and situations, as is generally imagined*. I cannot say that I am aware of any material difference, either in their management of the dairy, or the process of cheese making, from that of the county of Gloucester; but at the same time, should feel myself obliged to any of your numerous Correspondents, who would favour us with a particular description of both, from *practice*.

I am, Sir, your obedient servant, T. POTTS.

For the Agricultural Magazine.

A METHOD OF PRESERVING TURNIPS FROM THE FLIES,
COMMUNICATED BY MR. WESTON, SECRETARY TO THE
LEICESTER AGRICULTURAL SOCIETY.

The following method having been communicated to me from Norfolk, a country particularly famous for cultivating Turnips, and as the season is now approaching for sowing them, it may be found useful to some persons who are willing to try it. R.W.

THE variety of experiments made use of during many years past, for preserving that excellent and useful plant the turnip, from the ravages of the fly, having proved in many places ineffectual, or at least inadequate to the purpose intended. I recommend the following, which for three successive years trial, I have found to answer in every respect, and my discovery was owing to the following accident.

A neighbouring Farmer not having a sufficient quantity of manure for all his turnip land, was under the necessity of sowing four acres unmanured. The effect was, that the turnips on the manured part of the land were mostly eaten off by the fly, while four acres unmanured escaped without injury.

Having a small farm which I occupy for my amusement, and being very anxious to promote improvements in agriculture, I determined the following season to make some experiments from the above hint.

Accordingly in the summer of 1797, I manured five acres well for turnips, and tilled three acres in the usual way without manure. Those which I manured were almost universally destroyed by the fly, in so much, that I was obliged to sow most of the land over again. The three acres which had no manure, were entirely free from any injury. I must indeed, confess, that when I came to draw them, they were not so large.

Not content with this single trial, I determined to repeat my experiment still further. Therefore, in the latter end of the following autumn, after having taken the haulm and seed off, I manured six acres of wheat stubble, which I intended for turnips the ensuing season. This done, I immediately ploughed it, leaving it to incorporate with the earth till the following summer, which had the desired effect; for the turnips which grew upon it, were as large as those on the land which had been manured.

The two successive years I repeated the experiment, which answered beyond my expectation. Hence I infer, that the fly is either ingendered in the new muck, (dung,) or inticed by it. But when this manure is laid on, in the autumn preceding, it loses all that noxious quality, and from what I have observed, retains all its nutritive one, though philoso-

phically speaking, they are liable to be in some degree exhaled by the heat of the sun.

Another material advantage occurring from autumnal manuring for turnips is, that all the seeds contained in the manure, and which of course are carried on the land with it, vegetate almost immediately, and are wholly killed by the severity of the winter. If a few remain, they can seldom avoid destruction from the plough.

This is a more effectual means of clearing lands of weeds, than has hitherto been used, and considerably lessens the labour of turnip hoers.

R. WESTON.

ON SAINFOIN, BY AN ESSEX FARMER, COMMUNICATED TO
THE BATH AGRICULTURAL SOCIETY.

Extracted from the Bath Papers.

AS the roots of Sainfoin strike deep in chalky soil, this plant is not liable to be so much injured by drought as other grasses, whose fibres shoot horizontally, and lie near the surface. The quantity of hay produced, is greater and better in quality than any other. But there is one advantage attending this grass, which renders it superior to any other, and that arises from feeding it with milch cows. The prodigious increase of milk which it makes is astonishing, being nearly double that produced by any other food. The milk is also better, and yields more cream than any other. Sainfoin will always succeed well where the roots run deep; the worst of all soil for it is where there is a bed of cold wet clay, which the tender fibres cannot penetrate. This plant will make a greater increase of produce, by at least thirty times, than common grass on turf or poor land; where it meets with chalk or stone it will extend its roots through the cracks or chinks to a very great depth, in search of nourishment. The dryness is of more consequence than the richness of land, for Sainfoin; although, land that is both dry and rich, will always produce the largest crops.

It is very commonly sown broadcast, but is found to answer best in drills, especially if the land be made fine, by repeated ploughing, rolling, and harrowing. Much depends on the depth at which this seed is sown; if it be buried more than an inch deep, it will seldom grow, and if left uncovered, it will push out its roots above ground, and these will be killed by the air. March and the beginning of April are the best seasons for sowing it, as the severity of winter and the drought of summer, are equally unfavourable to the young plants.

For the Agricultural Magazine.

ON TYTHES AS ONE OF THE MOST OBVIOUS IMPEDIMENTS OF AGRICULTURE, AND ON MEANS PROPOSED FOR THEIR ABOLITION, EQUALLY ADVANTAGEOUS TO THE CLERGY AND LANDHOLDERS. BY THE REV. H. J. CLOSE, OF HORDBLE, NEAR LYMINGTON, HANTS.*

THOUGH a Clergyman, and deriving the chief support for myself, a wife, and eight children, from the revenues of the church, yet I must candidly acknowledge, that tythes operate as a direct tax on the skill, the capital, and industry of the country; and I believe most of my brethren would rejoice could any mode of payment be devised which would secure to them and their successors, the same rank in society, which they now fill with so much credit to themselves, and with such advantage to the community. I am aware that this is a subject of the utmost importance, and that it will require the attention of the most skilful politician, to relieve the country from this oppressive tax, without injury to a most respectable and useful body of men. Indeed it is a subject which involves in it every thing which an Englishman or a Christian can hold dear. Our political and religious polity will be more firmly established, or shaken to the very foundations, as this question, whenever it may be agitated by the legislature, shall be well or ill conducted. Under these impressions, I should enter upon the subject with no small degree of agitation, were I not conscious that should the opinions of an obscure individual like myself prove erroneous, they will be disregarded by the good sense which in this enlightened æra of society pervades the nation.

The plan I am about to propose is simply this: let the tythes of the kingdom be valued, and each proprietor of land have the refusal of the tythes of his own property at the valuation. Should this business be well conducted, the interest of half, or at most, three fourths of the capital thus raised and vested in the public funds, would secure to the clergy the amount of their present incomes; and the remainder of the capital might be an accumulating fund to prevent the present incumbents, or their successors from suffering any injury by an advance on the necessary articles of life, and a consequent depreciation in the value of the circulating medium. Once in four or five years the average of the price of wheat, the staple and most necessary grain in the country, should be taken, and should it appear that an advance had taken place, the incomes of those who had disposed of their tithes

* See Communications to the Board of Agriculture, Vol. 3, Part 1.
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should receive a proportionate addition. But as no power on earth should invade the property of any individual, or oblige him to dispose of it without his free consent; I would propose that the attempt to release the nation from this tax, should originate with the King's most excellent Majesty, who is ever ready to alleviate the distresses, and add to the comforts of his people. His Majesty, with the consent of the Imperial Parliament, may undoubtedly dispose of all the preferment in the patronage of the crown, and to induce the present incumbents to approve of such a measure, an addition to their incomes of fourteen or fifteen per cent. might be offered to all those who have received a composition in lieu of tythes, and whose agreements commenced previous to the year 1795; or these years of scarcity. To others the commissioners might make in writing, such offers as seemed in their judgment equitable, from which no deviation should be made. Suppose the incomes of the parochial clergy holding livings under the patronage of the crown to amount to 110,000*l.* a year; to this calculation, if it may be so termed, must be added at least one third, to come near the full value of the tythes arising from this preferment, independent of those belonging to the dignitaries which are not included. This would amount to upwards of 146,000*l.* per annum, and at only twenty-six years purchase, (though tythes are usually sold at thirty,) would raise the sum of 3,796,000*l.* which at only four per cent. would secure to the clergy holding such preferment their present incomes, and leave about 40,000*l.* as an accumulating fund. The effect this would have upon the public funds must be evident. His Majesty would not be deprived of his patronage: the clergy and their successors would be secure of holding their present rank in the scale of society, and the agricultural interest of our island would be exonerated from a burden which is a constant subject of complaint. Were this scheme adopted and put in practice, with the livings in the gift of the crown, and free liberty given to other patrons and incumbents to pursue the same plan, I am of opinion no such mode of payment as tythes would subsist in twenty years. Let a proportion of every man's farm be free from tythes, and he may crop the other part so as to make it the interest of every lay impropiator to sell at a fair price, and with the clergy there would be few who would make any objection should the plan proposed appear to them as it does to me, a very eligible one.

J. H. C.

ON THE GENERAL APPLICATION OF MANURES TO LAND.

To the Editor of the Agricultural Magazine.

SIR,

IN applying manure to land several circumstances are necessary to be considered, such as the state or condition of the substances which are to be made use of, the nature of the soils on which they are to be laid, the kind of crop that is to be promoted by them, and the season in which they are to be put into or upon the ground.

It is well known that changes are continually taking place from the moment the materials of the dung heap are thrown together to the period in which they are reduced into a black earthy matter; and that in most of the stages through which they pass in this process of decomposition, such substances are formed as are capable of contributing to the nutrition and support of vegetable crops; it seems probable that in cases where manures are to be turned into the ground, and such crops cultivated as require a supply of nourishment for a considerable length of time, they should be employed in their long or more imperfectly reduced states, as by the heat which is evolved in the commencement of their dissolution, the process of early vegetation may be greatly promoted, and their gradual decomposition and decay, afterwards under the ground, afford a more durable and regular supply of nutrient materials, and thereby contribute more effectually to the growth of the crops; but that where they are to be buried in or applied to the surface of the soil, and intended merely for the benefit and support of such crops as are of short duration, or quickly arrive at their full growth, they may be more advantageously made use of after they have been more fully and completely reduced, as in this state the manure is, (in the case of grass lands,) not only capable of being spread out in a more regular and uniform manner, by which it becomes more evenly as well as more generally carried down to the roots of the plants by rains, but it is in the most suitable condition for allowing the young plants the means of springing up with facility, and at the same time, whether used upon or under the soil, of affording the crops that abundant supply of nourishment which is necessary to their speedy growth and great luxuriance, and by these means to contribute the most perfectly to the promotion of their increase.

Besides the above advantages, of long or imperfectly decayed manures, they have others that depend on the soil into which they are turned, and the nature of the crops that are sown or planted with them. Where they are employed in such stiff clayey or loamy grounds as have a great tendency

to become dry and hard, and thereby incapable of admitting the tender fibres of grains or other plants to spread or extend themselves, and draw in more abundant supplies of nourishment, they may be useful by keeping the earth around them in a more open and porous state from the slowness of their decomposition, and the gradual and continued manner in which the different elastic matters are let loose and united with the soil. Hence, when barley or such kinds of grain as require a rather light and open state of soil, and those bulbous or knobby rooted plants, such as potatoes, that require much room to shoot and extend themselves, are cultivated on such stiff soils, they are generally found to be the most productive where such long or imperfectly reduced manures have been made use of in the preparation of the land.

And as in the slow and gradual decomposition of the materials which are made use of for manures, when slightly deposited beneath the soil, there is much less waste of heat and those elastic matters which contribute so greatly to the support of vegetation, than where they are made to undergo the various processes of dissolution in large masses as in dung heaps, they may probably, sometimes on that account, be most advantageously employed in this state.

On this principle too, the ploughing down of fresh vegetable crops in many cases in their most succulent states, may be a more economical, as well as beneficial practice, especially in such light and dry kinds of soil as will more readily admit of their gradual putrefaction and decay, than to cut and take them off for the purpose of being by other means converted into manure. It seems, likewise, probable on the same grounds, that for the production of crops of bulbous rooted vegetables on the more stiff and tenacious soils, the matters made use of as manures, may be employed with the greatest advantage, when put into the earth before they have undergone any great degree of decay by means of putrefaction, as in this way there is no waste, the whole being ultimately converted and applied, though more slowly, to the support of the crops.

As to the season in which manures may be put into the soil or spread out upon its surface, with the greatest benefit and advantage, though in practice it must in some measure depend on the state of the land and the convenience of the farmer, it should, in cases where they are buried in the ground, be as nearly as possible to the periods in which the seeds, or the roots, which they are designed to support, are sown or placed in the earth; and in the latter case, or where they are to be laid upon the surface of the land, it ought probably to be just before the crops of grass or other vegetables begin naturally to spring or shoot forth.

By the practice of depositing and blending the manure with the soil nearly at the time the crops are put in, there is scarcely any waste of the fertilizing properties of such substances, which as they gradually proceed in their decomposition, and decay under the ground, must otherwise be the case, the roots of the plants not being in the most proper states for taking them up, and converting them to their support. Besides, in the stiff, loamy, and clayey soils, they have a tendency as has been remarked above, to produce a degree of lightness and friability that is suited to the early process of vegetation.

By the application of such manures as are employed in the way of top dressings in the spring, they are laid on in the most favourable period for affording their nutritious principles, and for their being imbibed by the roots of the plants, consequently become useful at the time they are most wanted for the promotion of the crops, and the great waste which must otherwise be caused, either by the excessive falls of rains and floods in the winter season, washing down much of the valuable properties into the adjoining rivers and ditches, or the evaporation of their more volatile or elastic matters, by means of the summer heats, is most effectually guarded against and prevented.

The common practice in some places of applying manure to grass lands in the latter end of summer or beginning of autumn, after the first crop of hay has been taken from the ground, and the after grass has begun to make shoots, is not by any means so favourable as that of early spring, as in the latter case, the generation of those materials that contribute to the support of vegetation, is greatly promoted by the constantly increasing heat of the vernal and summer months; whilst in the former, it is constantly checked and retarded by the increasing coldness of the autumn and winter seasons. Besides, the manure, by being spread out upon the surface of the land, under such circumstances, must be the cause of great loss, by contaminating the after grass, and rendering it incapable of being eaten off by cattle, or other kinds of live stock.

Where, however, a second crop of Hay is to be taken, it may sometimes be put on at such times with advantage to such crop, especially if the weather be not too hot, and the manure in a perfectly fine and reduced state.

There can scarcely be a worse mode of using manures on grass lands than that which is practised in many parts of the country, of carting out the manure during the frost. While the frost lasts the land can derive no advantage from the manures, and where a thaw supervenes, it is evident that the wash from the melting snow, or from the rains which generally fall in such weather, must deprive the mass of every part that is soluble. The ground in the mean time

retains the frost for several days, and is therefore incapable of absorbing the wet which falls upon its surface; and even where the influence of the milder air has reached it; it can imbibe but little, being in general previously filled with water, and the quantity which flows over it, being too great for the soil, under any circumstances, to drink up.*

In favour of this destructive and wasteful practice, however much it may have been defended on the ground of the farmer's leisure or convenience, and the little injury done to the turf, or sward of the land, there can be only one reason alledged, which is, that manure when spread early in the winter, may protect the roots of grasses from the severity of frosts. This too is probably a mistaken notion, as it is known to every one that the common grasses are seldom injured by the severest frosts; and other kinds of grasses may probably not suffer less injury from the application of manure at such a season than from the severity of frosts.

On all these accounts, therefore, farmers should contrive as much as possible, to apply the manures, intended as top-dressings to grass lands, as early in the spring as it can be conveniently done, which may be easily managed on those that are dry; and on such as are inclined to be wet and poachy, it may probably be greatly facilitated by having small light carts constructed for the purpose, and placed on broad cylinders as wheels. By applying manures to grass lands at such periods, the trouble of the farmer will not only be rewarded by much larger crops of Hay, but also by a considerable increase in the quantity of the after-grass; besides his crops in both instances will be more forward than in the ordinary methods of putting them on either in the Autumn or Winter months, which in many cases is a circumstance of great importance.

In the application of manures to lands under tillage, as well as those in the state of grass, there are a few other circumstances that require the attention of cultivators; such as the depth they may be deposited in the soil, the modes of putting them upon the ground, and the most economical methods of employing them.

As the putrefaction and decay of animal and vegetable matters, whether above or beneath the ground, are greatly promoted by the free admission of air, and a suitable degree of moisture to them; it is evident they should not be buried so deep in the earth as that they may be prevented from readily receiving the aid of such causes in forwarding their decompositions; nor, as the process is known to be much retarded by the substances being rendered too dry, should they be placed so near the surface, or be so thinly covered as to permit the action of the sun and winds, before the

* *Fenwick's Reflections on Manures.*

crops have risen to such heights, to prevent it from dissipating and carrying away their nutritious properties. The introduction of the manure to a middling depth, as three or four inches, would therefore on these accounts, as well as from its contributing more expeditiously and fully to the vegetation of the crops that may be put in with it, seem in general to be the most advantageous practice; but on the lighter and more friable soils; it may be advisable to plough it in to a greater depth than in such as are heavy and tenacious. In every case, however, whether the manure made use of be in a long or a more reduced state, it should be perfectly covered or ploughed into the earth. The practice of burying manures deep in the soil, has been defended by some, on the ground of its being the nature of elastic matters, to rise or force themselves towards the surface; but when they are placed at a considerable depth in the earth, as the process of decomposition is thereby stopped, or suffered to proceed in but a very slow and feeble manner, little or nothing escapes for the support of vegetation, or it is furnished in so very slow and sparing a way, as to be of scarcely any service to the immediate crops. Thus in the cultivation of such crops as are placed in rows or drills, where the manure is put in at a great depth, and covered pretty thickly with earth, on ploughing or digging them up at the end of many months, it may frequently be observed nearly in the same state as when first put into the ground. And the same thing is often noticed by gardeners, where long dung is placed in deep trenches, and covered to a considerable thickness with mould.

In order that manures may produce their effects in the most perfect manner, they should be spread over the surfaces of the grounds as evenly as possible, whether they be intended to be turned into the soil, or left upon its surface as top dressings. This may be greatly facilitated by placing the manures out at first, in very small heaps, as by such a mode, they may be spread over the ground with much greater ease and exactness; and on grass lands, much less injury will be done by the bottoms of the heaps.

On arable lands, manures should always be turned in, or otherwise covered, as soon as possible after they are spread out; for if this be neglected, much loss may be sustained, especially in hot seasons, by the quick evaporation that takes place in such cases. The best practice therefore, is not to carry out more from the dung-hill at a time, than can be conveniently spread upon and ploughed into the earth in a short time afterwards. In spreading manures employed as top dressings in grass lands; much advantage will be gained by breaking or reducing the clods or lumps into as fine a

state as possible, as by such means they are not only applied more perfectly, but washed by the rains much more readily to the roots of the grasses. The spring of the young grass is also less retarded, where the manures are rendered fine and powdery, than where they are left in a cloddy state.

Another economical mode of employing manure is, by placing it in the drills, formed for the reception of different crops, which are cultivated in rows, such as peas, beans, cabbages, potatoes, &c. by this method that part of the ground which is intended to bear the crop only is manured, the intervals or spaces between the rows not receiving any, from which, where the business of putting the manure into the drills is properly performed, a great saving must of course be made. According to the conclusions of the author of the "Experienced Farmer," the saving of manure in this way is so great, as to constitute one of the chief advantages of the drill system of husbandry. His calculation is that by drills being made two feet asunder, and each drill six inches wide at the bottom, there will be just one fourth part of the ground covered with manure. For as six inches multiplied by four, give two feet, which will be the distance from drill to drill, and as four multiplied by four make sixteen, it follows, that if the whole of the land had been covered with manure, sixteen loads would have been required, for what is as fully and beneficially performed by four, that is by one quarter of the quantity used by the old method of dressing, supposing it of the same thickness and quality; besides, from the manure being in this method of dressing kept closely together, and the seeds or plants placed immediately upon it, they must, he suspects, receive the advantage of the dressing in a more full and complete manner.

As it appears probable, that in the decay of different materials in the soil, all the nutritious matters as they are formed immediately, become useful for the purpose of vegetation, without any waste being sustained, as must always be more or less the case, where they are deposited together in heaps; it may be an economical practice, as has been already observed, in cases where the crops to be benefited by them, require a regular and lasting, but not large supply of nourishment, or where the ground is required to be kept in an open and rather light state, for a considerable length of time, to employ such manures in their less decomposed states, as by the ploughing down of green succulent vegetable crops, and the turning in of long strawy substances.

By adopting such means, the more perfectly formed manures of the farm, may be reserved for such crops of luxuriant vegetables, as demand more speedy and abundant supplies of nutrient matters.

In respect to the advantage of using one sort of manure in preference to another, it may be observed, that as animal matters are found in general, to undergo more speedily the process of putrefaction than those of the vegetable kind, and as in most instances they afford those mucilaginous and elastic principles, that contribute so largely to the support of vegetable life in greater proportions; such manures as are either wholly or in a great measure composed of them, must be the most beneficially employed where quick and abundant supplies of nourishment are required, as in the growth of all the more gross and luxuriant crops, whether of grain, plants, or grasses; and that as those vegetable substances which contain saccharine, farinaceous, oily, saline, or mucilaginous principles in the largest quantities, are ascertained from experience, to proceed the most readily into the state of dissolution or decay, and consequently to afford more fully and more expeditiously the nutrient food of new plants: where manures are principally formed from them, they should be preferred to such as have been made from the harder and more ligneous vegetable substances, that contain such properties in scarcely any or much smaller degrees, for all the purposes of agriculture.

And lastly, such substances as are found to contain those elementary materials, of which vegetables are principally constituted in their more soluble or loosely combined states, should be made use of in preference to those which possess them in slight proportions, or scarcely at all.

P.

For the Agricultural Magazine.

A CATALOGUE OF ENGLISH, IRISH, AND SCOTCH AUTHORS, ON AGRICULTURE, GARDENING, AND BOTANY, ARRANGED IN CHRONOLOGICAL ORDER, FROM THE YEAR 1480, TO 1700. BY MR. WESTON, SECRETARY TO THE LEICESTER AGRICULTURAL SOCIETY.

AS the study and practice of Agriculture, Gardening, and Botany, are so eagerly pursued at this time, throughout the united kingdoms; it cannot be either unuseful or unentertaining to the lovers of those sciences, to be made acquainted with the various authors, and to shew the progressive improvement, which they have arisen to, since the introduction of printing.

This cannot be ascertained with more propriety and certainty, than by exhibiting the various authors who have succeeded each other, arranged in chronological order.

These three subjects are so nearly allied, although distinct sciences, that it was necessary to arrange them altogether,

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and mark to which each belonged, and in many authors, two are joined together, as agriculture and gardening, and gardening and botany.

Agriculture is the mere culture of the ground with the plough.

Gardening is in a more improved manner, by the hands of a skilful gardener, and the more the farmer imitates the gardener, the more profitable it will be to him.

To assist in both these, botany must lend her aid, as it frequently assists the farmer to ascertain the difference of various plants, when the seeds of one is attempted to be substituted for another, as winter and spring tares, rape and cole-seed, and many others.

EXPLANATION OF THE ABBREVIATIONS.

Agr. refers to Agriculture.

Gar. ——— Gardening.

Bot. ——— Botany.

Nat. H. ——— Natural History.

1480. Bryce, Hugh. *The Mimour of the Worlde*. Printed by Coxton, contains one hundred leaves. It treats "of the trees that ben in ynde, and of theyr fruyt." Gar.

1500. ———. *Propertees, and Medecynes for a Horse*. Wynken de Worde, 4to. Agr.

1500. Groshead, Bishop. *Treatise of Husbandrie*. Wynken de Worde, 4to. Translated from the French. Agr.

1510. Vaughan, R. *Water-works*, containing the manner of winter and summer drowning the meadow and pasture lands. Agr.

1516. ———. *The Grete Herbal*. Peter Treveris. Bot.

1521. Arnolde, ———. *The Customes of London, or Arnolde's Chronicle*. Folio. "The craffte of graffynge and plantynge and alteryng of fruyts, as well in colours as in taste." Gar.

1527. ———. *The Grete Harbal*, which gyveth parfyt knowledge and understanding of the boke lately printed by me Peter Treveris. Bot.

1527. Andrew, Laurence. *The vertuous booke of the distillation of all manner of waters, of the hearbes, with the ffigures of stillatories to that noble worke belonging: made rst in High Almayne, by Jerom Brunswicke, translated by L. A.* Bot.

1534. Fitz Herbert. *The book of Husbandry*, imprinted by Thomas Berthelet. Agr.

1538. Bense, Syr Rycharde. *The Maner of Measyrynge of all manner of lande as well woodlande, as of lande of the felde, newly invented and compyled by Syr Rycharde Bense, Chanon of Marton Abbaye, besyde London*. 4to. Agr.

1539. Fitz Herbert. The book of Surveying and Improvements. Small 8vo. 120 pages. Agr. Reprinted in 1799. Agr.

1539. ———. A Grete Herbal: a Table after the Latyn names of all Hearbes; a Table after the Englysh names of all Hearbes; the propertees and qualytees, &c. Londini in edifus, Thome Gibson. Bot.

1542. Macer's Herbal, translated out of Latyne, imprinted by me Richarde Wyer, Charynge-crosse. 8vo. Bot.

1544. Turner, Gulielmus. Anglus Historia de naturis Herbarum Coloniae, in 8vo. Bot.

1550. ———. The Boke of Haukyng, Huntynge, and Fyshyng, with all the propertees and medecynes that are necessary to be kepte. Imprinted by William Powell. 4to.

1551. Turner, M. D. William. A New Herbal, wherein are contained the names of herbes in Greke, Latyn, English, Dutch, Frenche, and in the Poticaries and Herbaries latin, with the properties, degrees, and natural places of the same gathered. London: by Steven Mierdman, in fol. with cuts from Fuschias. The 2d part, with a booke of the natures of the bathes. London: Arnold Birchman, 1562. A 3d Edition in 1568, fol. black letter. Bot.

1559. Morwyn, Peter. The Treasure of Euyonymus, conteyninge the wonderful hid secretes of nature. 4to. Bot.

1559. ———. The Kalendar of the Sheparden, imprinted by William Powell. fol. Agr.

1561. Hollybush, ———. The most excellent Homish Apothecarie, translated by Hollybush. fol. Bot.

1562. Bulleyn, ———. Bulwarke of Defence against all sickness, sores, and woundes that do dailie assulte mankinde, which bulwarke is kepte with Hillarius the gardynier, and Health the physician: with his boke of symples. Imprinted by John Kyngstone. fol. Bot.

1562. Tusser, ———. Five hundred Points of Husbandry. Black letter. 4to. This book is written in stanzas of four verses each, and is very obselete. It contains more verses than Virgil's Georgies. Agr. There are other editions in 1604, in 1672, in 8vo. also in 1710, and 1743, with notes and observations.

1562. Whetstone, ———. Rocke of Regarde, containing the castle of delight, the garden of unthriftinesse, the arbour of virtue, and the orchard of repentance.

1565 Moore, Philip. The Hope of Helthe, wherein is contayned a goodlie regimente of life, and the virtues of sondrie herbes, doen by Philip Moore, imprinted by John Hyngstone. 12mo. Bot.

1566. Blundeville, Thomas. The fower chiefyst Offices belonging to Horsemanship. 4to. Agr.

1571. Mountain, Didymus. *The Gardener's Labyrinth, shewing the physical virtues of each herb, with cuts, printed by Bynneſman, black letter. 4to. 2d ed. 1608, and in fol. in 1652. Bot.*

1572. —————. *Remedies for Diseases in Horses. 4to. Imprynted by Thomas Purfoot. Agr.*

1572. Mascal, Leonard. *New Art of Planting and Grafting. 4to. and in 12mo. Gar.*

1573. Moore, Philip. *A Prognostication for Thirty-four Years, verie profitable for all men, specially for husbandmen. 12mo. Agr.*

1574. Hyll, Thomas. *Art of Gardening, black letter. 4to. Gar.*

1574. —————. *The Perfite Ordering with the marvellous Nature of Bees. Black letter. 4to. Agr.*

1574. Scot, Reynolde. *Perfect Platform of a Hop-Garden. 4to. 2d ed. 1576. Agr.—The first treatise written on that subject.*

1575. Morwyng, Peter. *The Treasure of Euonymus, containing the wonderful hid secretes of nature, translated out of Latyne, with wooden cuts of herbs. 4to. Bot.*

1577. Leigh, ——. *Profitable and commendable Science of Surveying Lands. 8vo. and in 4to. in 1578. Agr.*

1578. Lyte, ——. *Niewe Herbal, or History of Plantes, their straunge figures, fashions and shapes. Fol. By Gerarde Dewes. Another edit. by Edw. Griffin. Bot.*

1578. Googe, Barnaby. *The Whole Art of Husbandry, in four books. 4to. Black letter. Agi.—Translated from the Latin of Conrad Heresbach, a German. Gervase Markham reprinted this work in 1614, 4to. with insertions, intended chiefly to adapt German husbandry to the English climate.*

The following authors are quoted by B. Googe, and said to have been coteemporaries with Fitz-Herbert, but their writings are very scarce, if preserved at all.

Sir Thomas Malbee	Capt. Bingham
John Somer, Canon of Windsor	Thomas Wettenhall
Henry Brockhall	Richard Deering
H. King, D. D.	Mr. Franklyn
Henry Dennis	Richard Andrews
John Hatche	William Pratt
Nicholas Yeersworb	Philip Partridge
	Henry Datforth.

1590. Frampton, John. *Joyful Newes out of the new founde Worlde, with the vertues of herbes, trees, plantes, &c. also the porttratures of the sayde hearbes verie aptlie described. Bot.—Englised from the Spanish of D. Monardus. Small 4to. "Delas Drogaas de las Indias." Printed in 3 parts, in 1569, 1571, and 1574.*

1581. Frampton, John. *The Husbandlie Orderying and Government of Poultrie.* 12mo. Agr.

1582. ————. *Boke of the Propertie of Hearbes and Flowers.* Bot.

1586. Hyll, Thomas. *The Profytable Arte of Gardening,* now the third time set forth. 4to. Gar.

1586. Lupton, Thomas. *A Thousand notable Thinges of sundrie sortes, whereof some are wonderfull, some straunge, some pleasant, some dyvers necessarie, a great sort profitable, and many very pretious.* 4to. Bo. Ag.

1586. Lyte, ——. *New Herbal, or Hystory of Plantes,* englisht by Lyte from Dodoens. Imprinted by Ninian Newton. Black letter. Bot.

1588. ————. *Certain Causes gathered together, wherein is shewed the Decaye of England onlie, by the grete multitude of shepe, to the utter decaye of the house, mayntenance of men, dearth of corne, and other notable discommodities.* 12mo. Agr.

1538. ————. *The Good Huswife's Hande-Mayde.* 8vo. Agr.

1589. Hackluyt, ——. *Voyages, Travels, and Discoveries.* Black letter, fol. Nat. Hist.

1591. B——, J——. *The Book of Thrift.* 12mo.

1591. Cockaine, (Knight) Sir Thomas. *A Shorte Treatyse of Huntynge.* 4to. Agr.

1593. Platt, Sir Hugh. *Dyvers Soyles for manuring Pasture and Arable Land.* 4to. Agr.

1594. Plattes, Gabriel. *Jewell-house of Art and Nature.* 4to. Agr.

1595. Ward, William. *Secretes of the Reverend Maister Alexis of Piedmont, translated out of Frenche into Englishe, written originally in the Italian tongue.*

1596. ————. *Remedies against Famine,* 4to. Agr.

1596. Mascall, Leonard. *On Horses; the second book of his treatise on cattle.* Black letter, 4to. Agr.

1597. ————. *How to chuse, ride, traine and diet both Hunting Horses and Running Horses, with all the secretes thereunto belonging, discovered.* 4to. Agr.

1597. Gerard, John. *Herbal, with cuts, in fol. and in 1599. Enlarged by Johnson in 1683.* Bot.

1597. Lawson, William. *A New Orchard and Garden,* in 4to. Another edition in 1623. Gar.

1597. Langham, ——. *Garden of Health, containing the rare hidden virtues of all kinds of simples.* Black letter, 4to. Bot.

1599. Hackluyt, ——. *Voyages, Travels and Discoveries.* Black letter, 3 vols. fol. Nat. His.

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1599. Churchy, G——. A New Book of Good Husbandry.

On Fish and Fish-ponds, translated from the Latin of Dubravivius, De Piscinis et Piscium Naturis. Agr.

1599. M——, T——. The Silke-Wormes and their Flies, lively described in verse, by T. M. a country farmer and apprentice in physick, 4to. Agr.

1600. Platt, Sir Hugh. Paradise of Flora. 4to. Gar.

1600. ———. The true and admirable Art of Setting Corn. 4to. Agr.

1600. ———. Certain Experiments of Fish and Fruit. 4to. Gar.

1600. Surfleet, ———. The Countrie Farme, also a collection of hunting the Hart, Boare, Hare, Fox, Grey Coney; of Birds and Faulconrie, with cuts; from the French Maison Rustique of Charles Stephens. Agr.

1601. Holland, M. D. Philemon. Pliny's Natural History, translated from the Latin, in fol.; and written with only one pen. Nat. Hist.

1606. Ram, ———. Little Dodoen, or History of Plants, Black letter. Bot.

1606. Massie, or Maxie, ———. A Treatise on Drilling Corn, in 4to. Agr.

1606. Surfleet, ———. The Countrie Farme, in 4to. 2d, edition. Agr.

1607. Geffe, Nicholas. The perfect Use of Silk Worms. Englished by N. G. 4to. Agr.

1607. Norden, Sir John. The Surveyor's Dialogue, Black letter, in quarto. 2d. ed. 1618. 3d in 1738. Agr.

Some extracts may be seen in the Museum Rusticum.

1608. Mountain, Didymus. The Gardener's Labrinth, in two parts, quarto. Gar.

1609. Butler, ———. Feminine Monarchy, or Treatise on Bees, quarto. 2d. edit. 1637. Agr.

1610. Falkingham, ———. Survey, in quarto. Agr.

1611. ———. The Common's Complaints upon the general destruction and waste of Woods, and the Dearth of Victuals, with Remedies; in quarto. Agr.

1612. C——, R——. An Old Thrift newly revived, of planting and preserving of Timber and Fewel, in four parts, quarto. Agr.

1613. Standish, Arthur. Directions for the Planting of Timber and Firewood. Agr.

1614. Googe, Barnaby. Whole Art of Husbandry, quarto. reprinted by G. Markham, with additions. Agr.

1615. Manwood, ———. A Treatise of the Laws of the Forests, wherein is declared the original and beginning of Forests. Black letter, quarto. Agr.

1616. Rathbone Aaron. *The Surveyor*, in four books, fol. Agr.

1616. Surfleet and Markham. *The Countrie Farme*. 3d. edition, fol. Agr.

1618. Seidon, —. *History of Tythes*, quarto. Agr.

1623. Markham, Gervase. *The Country Housewife's Garden*, quarto. Gar.

1623. Lawson, William. *A New Orchard and Garden*, quarto. Gar.

1624. Simson, Archibald. *Hieroglyphica insectorum vegetativorum, &c. quæ in sacris inveniuntur scripturis*. Edin. His. Gar.

1627. Mascall, —. *Government of Cattle*, in three parts. Black letter, quarto. Agr.

1629. Parkinson, John. *Paradisi in sole: Paradisus Terrestris, or a Garden of pleasant Flowers*, in fol. 2d. ed. 1656. Gar.

1630 Plattes, Gabriel. *New cheap and delicate Fire of Cole-balles*, quarto. Agr.

1631. Digges, Leonard. *Tectonicon, or a Treatise of Surveying, with cuts*. Black letter. Agr.

1631. —, —. *The Shepherd's Calendar*, wooden cuts. Black letter, 2d. ed. fol. Agr.

1631. Austern Francis. *Observations on Sir Francis Bacon's Natural History, so far as it concerns Fruit Trees; in quarto*. Gar.

1631. Markham, Gervase. *Farewell to Husbandry*, in quarto. Agr.

Googe, Barnaby. *Whole Art of Husbandry, with cuts*. Black letter, quarto; another edition of B. Googe, reprinted by Markham. Agr.

1633. Johnson, Thomas. *Gerard's Herbal, greatly enlarged and improved*, fol. with wooden cuts. Bot.

1634. Johnson Thomas. *Mercurius Botanicus, sive plantarum gratiâ suscepti Itineris descriptio, cum earum nominibus latinis et anglicis*. 12mo. p. 84.

———. *Pars altera*. 1641. p. 43. sive plantarum cambriæ descriptio. Bot.

The first catalogue contains above seven hundred plants; the second two hundred.

Gerrard's Herbal was republished by Mr. Johnson, with great additions and improvements.

1634. Levet, J——. *The Ordering of Bees*, quarto. Agr.

1635. Bate, J——. *The Mysteries of Nature and Art*, quarto. 2d ed.

1637. Butler, —. *Feminine Monarchie, or Treatise on Bees*, quarto; 2d ed. Agr.

1637. Remnant, ——. *A Treatise on Bees*, quarto. Agr.
1637. Plattes, Gabriel. *Discovery of Subterranean Treasures*, viz. of all manner of Mines and Minerals, from the Gold to the Coal; with plain directions for the finding them, &c. quarto. Agr.
1639. De Gray, ——. *Compleat Horseman and Farrier*. Agr.
1640. Parkinson John. *Theatrum Botanicum, or Theatre of Plants*, in fol. Gar.
1644. Markham, Gervase. *Masterpiece*, quarto. Agr.
1644. Plattes, Gabriel. *Mercurius Lætificans*, 12 pages in quarto. Agr.
1645. Hall, Joseph. *Essay on Timber Trees*. Agr. An extract from this work may be seen in the *Museum Rusticum*. Agr.
1645. Weston, Sir Richard. *Discourse on the Husbandry of Brabant and Flanders*, 24 pages quarto. Agr.
- This Discourse has been looked on as a capital performance, and it is remarked in the *Philosophical Transactions*, that England has profited in agriculture, to the amount of many millions, by following the directions laid down in this little treatise.
- In another edition, in 1655, Hartlib has annexed Dr. Beatis's annotations to it.
1646. ———, ———. *Brief Discoveries of Ways and Means for Manuring and Improving Land*. Agr.
1648. Markham, Gervase. *Way to get Wealth*. Agr.
1. Cattle and Fowl.—2. Recreation for a Gentleman.—3. Cookery.—4. Enrichment of the Weald of Kent.—5. Enriching of Barren Ground.—6. Making of Orchards and Husbandry of Bees.
1649. Parkinson, John. *Theatrum Botanicum, or Theatre of Plants*, fol. Gar.
1649. Blythe, ——. *English Improver, improved*. 4to. Agr.
1649. Blythe, ——. *Survey of Husbandry; discovering the best methods of improving of Land*; fol. Agr.
1650. Howe, M. D. William. *Phytologia Botanica*, in 12mo. Bot.
- In 1665, he published the *Stirpium Illustratione* of Matthias Label, under his inspections, in quarto. Bot.
1650. Hartlib, Samuel. *His Legacy; a second edition* in 1651; a third in 1655.
1651. Hartlib, Samuel. *Concerning the Defects and Remedies of English Husbandry*, in quarto. Agr.
1651. Speed, Adam. *The Reformed Husbandman*, imparted to Hartlib, by Speed, quarto. Agr.

1652. Grew, Nehemiah. *The Anatomy of Plants.* 2d. ed. in 1682. fol. Bo.

1652. Mountain, Didymus. *The Gardener's Labyrinth*, containing new and rare inventions, with cuts. fol. Gar.

1652. Mascall, Leonard. *Art of Planting and Grafting.* Gar.

1653. Blythe, ——. *English Improver.* Improved, 3d ed. quarto. Agr.

1653. Mascall, Leonard. *On Cattle.* Black Letter, quarto. Agr.

1653. Plattes, Gabriel. *Jewel-house of Art and Nature*, quarto. Agr.

1653. Plattes, Gabriel. *Observations and Improvements in Husbandry*, imparted to Sam. Hartlib, with twenty experiments. 32 pages, quarto. Agr.

1654. ———, ———. *The Countryman's Recreation*, or three books of Planting, Grafting, and Gardening, quarto. Gar.

1654. ———, ———. *The Expert Gardener*, with cuts. Gar.

1654. Whitaker, ———. *The Blood of the Grapes.* 8vo. Gar.

1654. Cole, William. *Introduction to the Knowledge of Plants.* 12mo. Bot.

1654. Cole, William. *The Art of Simpling.* 12mo. Bot.

1656. Markham, Gervase. *English Housewife.* Agr.

1656. Plattes, Gabriel. *Practical Husbandry Improved*, or a Discovery of Infinite Treasure, quarto. Agr.

1656. Parkinson, John. *Garden of Pleasant Flowers*, in fol. cuts. 2d ed. Gar.

1656. Tradescant, John. *Museum Tradescantianum.*

Hortus Tradescantianus, 202 pages, in small 12mo.

1657. Hartlib, Samuel. *Commonwealth of Bees.* Agr.

1657. Austen, Francis. *On Fruit Trees*, quarto, Gar.

1657. Ligon, Richard. *A true and exact History of the Island of Barbadoes*, also of the principal trees and plants there. cuts. fol. Bot.

1658. Stephens and Brown. *Catalogus Horti Oxoniensis.* Oxoniæ, 8vo. 2d ed. Gar.

1658. Platt, Sir Hugh. *Garden of Eden*, 8vo.

This is his *Flora's Paradise* (with a second original part) published by his kinsman Bellingham, with the title changed. Gar.

1658. Evelyn, Esq. F. R. S. John. *The French Gardener*; instructing how to cultivate all sorts of Fruit-trees, and herbs for the Garden, fol. Gar. A 3d edition of this work appeared in 1679, illustrated with sculptures.

As Mr. Evelyn was so great a contributor to the improve-

ment of gardening in England, his works are here inserted altogether in the order they were published.

1664. *Kalendarium Hortense, or the Gardener's Almanac.* Gar.

1664. *Sylva and Pomona*; a 2d edition in 1669; a 3d in 1679, and his last during his life time in 1705; a 4th in 1729, all in folio.

Dr. Hunter has reprinted it, about 1774, in quarto, with great additions and engravings.

In 1662, on establishing the Royal Society, he was appointed one of the first fellows and council, and published his *Sylva, or Discourse on Forest-trees* at their request.

1675. *Terra, a Philosophical Discourse of Earth*, relating to the culture and improvement of it for Vegetation, and the Propagation of Plants. Phil. Trans. afterwards in his works in fol. and in 8vo. and since in 12mo. Agr.

1693. *Treatise of Orange-trees*, translated from the French of La Quintinie. Gar.

1669. *Acetaria, or a Discourse of Sallets*, 12mo. Gar.

This was his last work, and he died in 1706, aged 85. He contributed largely, also to Houghton's *Husbandry and Trade Improved*.

Sylva; or a *Discourse of Forest-trees*, and the Propagation of Timber; to which is added *Pomona* concerning Fruit-trees, in relation to Cyder, the making and several ways of ordering it, &c.

1659. Duckett, Thomas. *Proceedings concerning the Improvement of all Manner of Land*, &c. Agr.

1659. Philpot, ———. *Survey of Kent*. fol. Agr.

1659. Speed, Adam. *Adam out of Eden*, 12mo. Gar.

1659. Lovel, ———. *Complete Herbal*. Oxford, 12mo. 2d edition, 1665. Bot.

1660. Gendre, ———. *Right Manner of Ordering Fruit-trees*, 8vo. Gar.

1660. Raius, Joannes. *Catalogus Plantarum in aures Cantabrigiæ*.

Catalogus Plantarum circa Cantabrigiam, nascentium, 8vo. appendix in 1663 and 1685. Bot.

Mr. Ray being so eminent an author, and having published so many works, they are all inserted together, as is done with Evelyn.

1669. *Experiments about the Tapping of Trees*, and the Ascent and Descent of their Sap. Phil. Tran. Bot.

1670. *Catalogue of English Plants*, 8vo. 2d. ed. 1677. Bot.

1673. *Observations, Topographical, Moral, &c. made in foreign countries*.

Catalogus Stirpium in exteris regionibus observatarum.
Bot.

1674. Discourse concerning Seeds, and the Specific Differences of Plants. Bot.

1682. Methodus Plantarum Nova, 8vo. Bot.

1686. Historia Plantarum Generalis. fol. Bot.—Second volume 1687, the third 1704.

1688. Fasciculus Stirpium, Britannicarum, 8vo. Bot.

1690. Synopsis Methodica Stirpium Britannicarum, in qua tum notæ Generum Characteristicæ traduntur, tum species singulæ breviter describuntur, 8vo. Bot.

1693. Methodica Animalium Quadrupedum, and then set about his Synopsis of Birds and Fishes; but this getting into the hands of the booksellers, lay suppressed many years, and was not published till after Mr. Rays death, in 1713, by Dr. Derham. Nat. Hist.

1691. The Wisdom of God manifested in the Works of the Creation, 8vo.

He assisted Mr. Willoughby, in his Observations upon Birds, which he reduced into order, and published after his death, in 1678, and his History of Fishes in 1685.

1660. Sharrock, ———. On the Propagation of Vegetables, by the concurrence of Art and Nature. Gar.

1661. Digby, ———. On Vegetation, 12mo. Gar.

1661. Grew, Nehemiah. On the Vegetation of Plants, 8vo. Gar.

1662. Atwell, George. The Faithful Surveyor. Cambridge, 4to. Agr.

1662. Dugdale, ———. The History of Imbanking and Draining of divers Fens and Marshes, both in foreign parts, and in this kingdom, and of the improvements here, extracted from records, manuscripts, and other authentic testimonies.

This work was exceeding scarce and sold at a very high price, but was reprinted in 1772. Agr.

1664. Blake, ———. Gardener's Practice, 4to. Gar.

1664. ———, ———. England's Happiness increased, or a Remedy against all succeeding dear years, by a plantation of Potatoes. 4to. Ga. Agr.

Potatoes were introduced into England, from the Continent of South America, by

This is the first treatise expressly on potatoes; but who the author is I have never yet discovered.

1665. Rea, John. Flora, or a compleat system of Gardening, with cuts. fo. Gar.

1666. Merret, Christopherus. Pinax Rerum Naturalium Britannicarum continens Vegetabilia, Animalia et Fossilia. 8vo. Bo. Agr.

1668. Chamberlayne, M. D. ———. *England's Wants*, humbly offered to the consideration of all good Patriots in both Houses of Parliament. 4to. Agr.

1668. Lawson, William. *Husbandry of Bees*, quarto. Agr.

1668. Worlidge, ———. *System of Agriculture*, fol. 2d ed. in 1675. Agr.

1669. ———, ———. *Observations and Advice œconomical*, 12mo. Agr.

1669. Blagrave, Samuel. *The Epitome of Husbandry*, 12mo. Agr.

He has copied 181 pages from Fitz-Herbert, without making any apology, and the remaining chapters are taken with the same liberty from Mascall, Blythe, and an Italian author, who wrote a Treatise, called by the Translator, the Heroic Excellence of Horsemanship.

1669. Morison, Robertus. *Hortus Regius Blesensis, auctus, seu Preludia Botanica*, 8vo. Another edition at Paris, in 1665, fol. Gar.

1669. Newcastle, Duke of. *New Method and extraordinary Invention to dress Horses*, fol. Agr.

1670. Iliffe, ———. *Compleat Vineyard*, 12mo. Agr.

1670. Smith, ———. *England's Improvement*, revived, quarto. Agr.

1670. Bacon, Lord. *Sylva Sylvarum, or a thousand curious Observations in Natural History*. Nat. His.

1670. Pettus, ———. *History, Laws and Places of the chief Mines and Mineral Works in England, Wales, &c.* fol. Agr.

1671. ———. *Saint Foine improved*, quarto, 2d ed. 1674. Agr.

1672. Drope, ———. *Sure Guide of raising and ordering Fruit-trees*, 8vo. Gar.

1672. Grew, Nehemiah. *The Anatomy of Vegetables begun, with a general account of Vegetation founded thereon*, 12mo. with figures. Bot.

1672. Hughes William. *The American Physician, or a Treatise of the Roots, Plants, Trees, Shrubs, Fruits, Herbs, &c. growing in the English Plantations in America*, 12mo. Bot.

1672. Josselyn, John. *New England's Rarities*, 12mo. Bot.

1672. Morison, Robertus. *Plantarum Umbelliferarum distributio nova, pertabulas cognationis et affinitatis ex libro naturæ, observata et detexta*. Oxonii. fol. Bot.

Plantarum Historia Universalis Oxoniensis. tomus 2 dus. fol. Oxoniae. 1680.

To nus 3 tius, post auctoris mortem expletus et absolutus à Jacobo Bobartol. Oxoniæ. 1699.

1672. Grew, Nehemiah. An Idea of a Philological History propounded, together with a continuation of the anatomy of vegetables, particularly prosecuted upon roots. 8vo. Bot.

1673. Almond, ——. The English Horseman. 8vo. Agr.

1673. Evelyn, jun. ——. Of Gardens, in four books. 8vo. Translated from the Latin of Renutus Rapinus, published at Leyden. 1672. 12mo. Gar.—Mr. Gardiner also, in 1706, translated it.

1675. Grew, Nehemiah. The Comparative Anatomy of Trunks, together with an account of their vegetation grounded thereupon, in two parts. 8vo. Bot.

1675. Cotton, Esq. Charles. The Planter's Manual, in small 12mo. Gar.

1676. Cooke, ——. On Forest-Trees. 4to. 2d edit. in 8vo. 1700. Gar.

1676. Sherley, ——. Curiosities of Scurvy-Grass, with cuts. 8vo. Bot.

1676. Rea, John. Flora, Ceres and Pomono. Fol. Gar.

1677. Geddes, ——. Method of Bee-hives. 8vo. 2d edit. 1721. Agr.

1677. Worlidge, ——. Art of Gardening. 2 vol. 8vo. Gar.

1678. Willoughby, Esq. ——. Observations on Birds. Nat. Hist.

1678. Plot, L. L. D. Robert. The Natural History of Oxfordshire, fol. with copper-plates. Fol. Nat. Hist.—Dr. Plot was Keeper of the Ashmolean Museum at Oxford.

1678. ———. Reasons for a Registry of Lands. Agr.

1679. ———. Compleat Gardener. 4to. Gar.

1680. Mascall, Leonard. The Countryman's Jewell, in 3 books. 8vo. Agr.

1681. Houghton, ——. Collection of Husbandry, 2 vol. 4to. Fol. in 1697, and 1727 in 4 vol. 8vo. Agr.

1681. Firmin, Thomas. Proposals for Employing the Poor. 4to. Agr.

1681. Knox, Robert. Historical Relation of the Island of Ceylon. Fol. Nat. Hist.

1682. Grew, Nehemiah. An Idea of a Philological History of Plants, and several other Lectures, read before the Royal Society, Fol. 83 plates. Bot.

1682. ———. Natural History of Coffee, Tea and Tobacco. Nat. Hist.

1683. Lambert, John. The Countryman's Treasure; or, A Treatise of Oxen, Sheep, Hogs and Dogs. 12mo. Agr.

1683. Hughes, ——. *Flower Garden and Vineyard.* 12mo. Gar.

1683. ————. *On the Management of Orange-Trees,* 12mo. Translated from the Dutch of Commelyn, in fol. Gar.

1683. Meager, Leonard. *Compleat English Gardner,* with 24 cuts, 4to. Gar. 10th ed. 1704.

1683. Sutherland, James. *Hortus Medicus Edinburgensis: or a Catalogue of the Plants in the Physical Garden at Edinburgh,* containing their most proper Latin and English names, with an English alphabetical index, 8vo. 2d ed. 1692. Gar. Bot.—He was Intendant of the Edinburgh Garden.

1683. Newton, M. D. James. *A Complete Herbal,* containing the prints and English names of several thousand trees, plants, shrubs, flowers, &c. all engraved on 176 copper plates, with his portrait. 8vo. Bot.—There is no letter press in this book, it being all engraved on copper plates. It was published again in 1752, 1770, and this last year, price 10s. 6d.

1684. Sibbald, Robertus. *Scotia Illustrata: sive Prodrromus Historiæ naturalis Scotiæ,* Edinburgi in fol. cum 16 iconibus. Nat. Hist.

1684. ————. *A Necessary Companion, or the English Interest.* 12mo. Agr.

1614. Plattes, Gabriel. *Remedies against Famine.* 8vo. Agr.

1685. Grew, Nehemiah. *Anatomy of Plants,* on 83 folio copper plates. Bot.

1685. Collins, ——. *System of Anatomy,* treating of man, beasts, fishes, insects and plants, fol. Nat. Hist.

1685. Willoughby, esq. ——. *History of Fishes.* Nat. Hist.

1685. ————, ————. *The Complete Planter and Cyderist,* 8vo. Agr.

1686. Bannister, ——. *Catalogue of Virginian Plants,* fol. Bot.—This work will be found in Ray's *Historia Plantarum*, 3 tomi fol.

1689. Wharton, Samuel. *Schola Botanica, sive catalogus plantarum quas ab aliquot annis in horto regio parisiensi studiosius indigitavit toume fortius, a Samuele Whartono Anglo, vel potius guliemo, Sherardo in lucem editus.* Amstelodami, 12mo. Bot.

1691. Pluknetius, Leonardus.

Phytographia, 4to.

Almagestum Botanicum, 4to. 1696.

Opera Botanica, 4 tomi, 4to. 1762. Bot.

1692. Petiverius, Jacobus. *Musei Petiveriani centuriæ decem, rariora naturæ continentés. viz.*

Animalia. Fossilia.

Plantas ex variis mundi plagis advecta, ordine digesta, e nominibus propriis signata. 8vo. Nat. Hist. Bot.

Cent. 1, in 1692, and 1695. Cent. 2, et 3. in 1698. Cent. 4, 5, 6, et 7. in 1699. Cent. 8. in 1700. Cent. 9, et 10, in 1703.

1694. Pechey, John, *Compleat Herbal of Physical Plants* 8vo. Bot.

1695. Moore, Sir John. *England's Interest, or the Gentleman and Farmer's Friend*, 12mo. Agr.

1696. Sloanus, M. D. Hans. *Catalogus Plantarum quæ in Insulâ Jamaicâ spontè proveniunt, vel vulgo coluntur*, 8vo. Bot.

1696. Langford, ——. *A Treatise on Fruit-trees*, 8vo. Agr.

1697. ———, ——. *The Mystery of Husbandry*, in 12mo. Agr.

1697. Donaldson, ——. *Husbandry Anatomised*. Agr.

1699. Facio, ——. *Fruit Walls improved by inclining them to the Horizon, with cuts*, by Grebelin, 4to. Gar.

1699. London and Wise. *The Complete Gardener, with cuts*, 8vo. Gar.—These two Authors were Gardeners of eminence, at the period in which they lived. Mr. Wise was gardener at Kensington Palace.

1700. Leigh, ——. *Natural History of Lancashire, Cheshire, and the Peak of Derbyshire*, fol. Nat. Hist.

1700. Warlidge, ——. *Art of Gardening*, 2 vol. 8vo. 2d. Ed. Gar.

The Retired Gardener, 2 vols. 8vo. 1706. Gar.—This will be continued to the year 1800, in two parts, first to 1750, which is ready, the other not quite completed.

(to be continued.)

OBSERVATIONS ON THE GRAND JUNCTION CANAL.

(Continued from page 24.)

SCALE.

THE grand basis and support of this Canal being founded in the City of London, and the River Thames, certainly required its being made on a scale adopted for such sized vessels, as would navigate that river with ease and security. There have been, it is believed, a few instances of narrow boats of seven feet beam, passing from London to Oxford by the Thames, and into, and along the Oxford Canal; but these have been very rare, and in vessels so narrow in proportion to their length, few people would be found to venture a considerable traffick on the Thames in all weathers. The canal, with its tunneley locks and embankments, might have been made a narrower one, for seven feet wide boats in a much

shorter time, and at a much less expence: but when it is considered, that 100 vessels per day, is full four to pass each lock every hour, even allowing the canal passable all hours of the night; and supposing 300 days in the year it can be kept navigable, (exclusive of Sundays, frosts, and those unavoidable stoppages, that take place for necessary repairs,) and allowing every such vessel each way to carry 20 tons, would give an annual tonnage of 600,000 tons, or 300,000 in each direction. This most assuredly would have paid the proprietors handsomely for a narrow canal, but would the public have been accommodated to the extent it required? Many of the advocates for narrow canals, allow more vessels to pass in an hour, which is very possible; though but few venture to state, that a greater weight can pass in a year with a single set of locks. Will not the quantities of fuel, cattle, metals, salt, cheese, pottery, glass, &c. from the north; and the almost infinite articles from London, with its various and very valuable manures and ashes; together with the chalk, lime, flints, stone, gravel, sand, wood, and grain, on or near the line, require a wide canal, even supposing a narrow one capable of forwarding a greater quantity than above stated? Narrow boats will also navigate with greater speed in a wide, than in a narrow canal. This kind of vessel will, without doubt, be in much use where expedition is most requisite: two of these will pass the locks together, enabling it on that account only, to do double the business of a narrow one. But the barge capable of conveying 60 tons, (excepting where expedition is superior to every other consideration,) surely promises to become that species of vessel most in request, on account of economy in both men and horses, as one man and one horse extra, will forward thrice the load, except loosing about a day in the whole length.

The necessity of wide canals must also have been allowed, by the Oxford, Coventry, and Grand Trunk Companies, from their entering into an agreement, to widen theirs on the completion of the Grand Junction, if required.

Less waste of water in transacting the same business, will also be sustained in the proportion, as one barge is heavier than two narrow boats.

COMMUNICATIONS AND BRANCHES. The canals in Surry, Sussex, and Hampshire, opening water conveyances from the Thames to the English channels, must operate as much to the advantage of the Grand Junction, as to them; all these districts want to a great extent, many of the leading articles that will be brought from the northern counties; and this in return, will afford them a more extended market for whatever they may have to spare.

London, by means of the Thames, will for a great extent, be the foundation of every link of the general system to the north and south; but the commencement of the Grand Junction at Brentford, promises to be the point of most consequence, from the length of the line, and its very various objects. This place may become in time a very considerable and useful depot, and the seat of many commercial undertakings, at present not thought of: though in this respect, it may yield to the superior advantages of the branch to Paddington.

This is the first branch north of the Thames, and being on one level, is consequently without locks; a convenience of immense consequence, for so many miles immediately connected with the Metropolis.

The market and wharf at Paddington embrace such a variety of objects, and those of such magnitude, making it equally as difficult to particularize them, as any attempt at stating the leading objects of the canal must be deficient, that does not notice, at least, some of the most considerable.

The bason exceeds 400 yards long, by about 30 wide; and already twelve or more convenient warehouses are built, with large inclosed yards for their different commodities; which, with the spacious sheds for hay, straw, and other articles in front, exhibit even already, a faint idea of the consequence this situation will in a short time arrive at.

Every large city must, of course, have the first necessities of life from the country; and the more perishable and cumbersome articles only, from a short distance. And as nothing so completely ruins the agriculture of any district as selling off its fodder, so *vice versa*, nothing ameliorates the surface more than the manure of large towns. Though these facts are known to nearly all the world, many may not be aware to what extent the Grand Junction Canal will improve the agriculture of several counties, by enabling them to use the various and rich manures of the Metropolis, till now absolutely too far removed, by the expence of conveyance, and in the same proportion, the country every year will be more enabled to send, for the use of the capital, greater quantities of hay, clover, and straw: articles that could not be spared without ruin to every farm that attempts it, but for the mutual advantage of the manure first received, and the supply made regular and certain. Manure then, in one direction, and hay, clover, and straw in the other, will be among the first objects of carriage at Paddington.

Fuel will be a great article here, when we consider that a great part of Herts and Bucks is already; and will more completely, be supplied with pit-coal, and in consequence, will

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spare its billet and other fire wood in much greater quantities, for the use of the metropolis. This trade will increase in proportion, as collateral branches shall be made into districts producing wood.

But pit-coal at Paddington, holds out an advantage to London, that will surely never be lost sight of. For although it cannot be supposed that Staffordshire, and other pit-coal, will supersede sea-coal, in any very great degree, price and quality considered; yet all must allow the effect a moderate quantity kept here, will have in preventing any sudden advance in price. A sufficient inducement to bring large quantities can only exist, when sea-coal becomes, whether from accident or design, unreasonably high. Manure, as back carriage being always obtainable, when nothing more profitable presents itself, and will, perhaps, be the principal cause of enabling any trader to keep pit-coal here, at a price at all in proportion to sea-coal.

Paddington is so far distant from the Thames, as to make even a sea-coal market a great convenience. This is already felt and acknowledged: but that the sea-coal trade should either be much hurt or ruined, is too absurd an idea to be seriously entertained; for the canal could scarcely convey in one direction, a weight equal to the sea-coal imported into the port of London. It may rather be expected that pit-coals will be burnt, on account of their pleasantness and cleanliness, in the palours of a part of the genteel world, and by no means in manufactories, or for culinary purposes.

The cattle market here has surprized many, by the extent it has already acquired; and the necessity for more than one beast market, has been very ably shewn. But surely the company should hold forth encouragement to bring them by the canal! Might not properly constructed vessels, (even gratis,) be an inducement to commence this much talked of mode of conveyance? Or a premium for the first and largest regular weekly cargo of cattle? Will not there be always plenty of heavy metallic articles, as iron or lead, or even slate, to be found, to increase the weight of cattle merely, and yet occupy but little space?

Many have allowed the superior state, cattle, sheep, and pigs, so carried, will arrive in, over those driven; but the experience of some well regulated trials, would bring this practice into general use much quicker and easier than all the reasoning in the universe: and when this superiority of conveyance is established, the cattle-market here will surely rest on as firm a basis, as any market in the kingdom. Mr. Weston, of Piccadilly, has placed this advantage very high indeed; an old salesman also supposes, fat sheep loose six pounds on an average, in driving 60 or 70 miles; if half this loss can be saved by

the canal, it will be very considerable, and tend to lessen the importation of tallow, as well as ensure the meat arriving in superior quality. The loss in weight of large cattle and pigs it is presumed, is in a greater proportion; and the expence by this mode, promises to be very greatly lessened in comparison to the present mode of conveying calves by land.

The garden-stuff market may grow more slowly; but whoever considers the great difference of soil, on or near the line of canal, may reasonably expect many places will more or less, become gardening spots, when they are secure of obtaining so certain a market as this at Paddington, and getting in abundance, London manure in return. Little premiums for considerable and regular supplies, may accelerate the period of making this place the great receptacle for potatoes, carrots, turnips, and the many various products of gardens, that admit of distant carriage and keeping. The more perishable articles may be brought daily from as great or greater distance than by land, at a much less expence. The same arguments will apply to fruits.

Paddington will, no doubt, be daily increasing as a warehouse for every article the north-west part of the Metropolis now gets from the country, on the line of canal: although the route by Brentford and the river, may be preferred for the consumption of the city, and for exportation.

WATER WORKS. From the high level of Paddington, water may be distributed over a great part of the Metropolis, and many have regretted the privilege to do so has not, before this, been made use of: but in justice to the conductors of this business, it does not appear, that there has been, as yet, at *all seasons*, water to spare. When the higher levels come to be noticed, it is hoped it will be shewn that every shadow of inability on this head, may with care be done away; and considerable exertions for this very purpose are now making. In case of fire, and on many other accounts, every large place cannot be too well supplied with water. It is hoped then, that part of the last subscription stated to be for this purpose, will be punctually applied thereto; and no unnecessary time lost in laying down some of the principal mains and pipes. May not a certain division of the town be supplied by each water company? Thereby avoiding opposition, yet each company will be the better enabled to effectually provide for its respective district?

It has been said, few things clear water better than by running it along, or over a sharp gravelly bottom; but if this is neither convenient or efficacious, may not 3 or 4 reservoirs or recesses, of perhaps half an acre each in extent, that is, about equal to the supposed consumption of one day, be formed, and the water in them used in turn? These might easily

be made near the canal, with proper and separate pipes to the principal main; and all the water by this method, would have 2 or 3 days to settle and become clear before it is let off for use.

The newly projected extension of the canal round the North of London, must at this time make, (as a private dispute which has been but lately adjusted, has, for several years past rendered) it difficult to determine to what extent; or on what scale, the different conveniencies at Paddington ought to be made. But it will be a severe reflection twenty years hence, to find the 50 or more acres of land, which the company are in possession of here, occupied by an incongruous and irregular mass of little petty places without plan or design, however convenient each office or warehouse may be in itself; when from the nature of the ground and situation, every thing great and noble, as well as convenient may easily be made. This uncertainty will now not last long; and in the mean time nothing should be done incompatible with a regular plan that can be avoided.

In things of much less consequence, the publick have been invited to give plans, and as the objects of this concern are almost every article from the most costly merchandize to the dung-heap, some little care, it must be allowed, is necessary as to arrangement.

THE LONDON CANAL. The utility of continuing a canal from Paddington round the North of London, consequently crossing every avenue on that side the metropolis, and uniting with the Thames, at or near those immense new, and as yet unfinished works, the London wet-docks at Wapping, and West India Docks at the Isle of Dogs, *below Lime House*, must be generally acknowledged. This, by affording room for erecting warehouses on or near its banks for the heaviest and most considerable articles, will cause a great saving in cartage, and the maintenance of horses.

At every avenue there will be a wharf of very considerable consequence, and the press of business on the banks of the river, will be therefore much lessened. It promises to make the route by Paddington more in use than that by Brentford; yet in very few instances does there appear any thing prejudicial to the Grand Junction Canal: unless lessening the consequence of Paddington as a depot, deserves a consideration.

From the immense quantity of business this will create whenever compleated, a proportionate supply of water will be wanted, and the almost only possible mode of procuring it, is through the Grand Junction. This has certainly none to spare at present, but the sources that have been pointed out will be hereafter noticed.

Whenever any one ventures to contemplate the consequence and extent of any projected improvement in or near the metropolis, the mind becomes soon lost, and shrinks at the magnitude of the object. No wonder then there should be different opinions as to the best mode of executing this great work, some preferring a rail-road to a canal, and others proposing both. A rail-road, however useful it might be in addition to a canal, it is presumed, would facilitate the system of pilferage, already so much complained of. It might make Paddington the first depot in the world, but surely it would fall infinitely short of vessels setting out on their respective trips from warehouses on its banks, adjoining every avenue to the most commercial parts of the city.

A canal also, would fill such warehouses by cargoes of from 30 to 60 tons each, a rail-road by loads of one, two, or three tons only, with the same inconvenience of cartage, when goods must be conveyed at all out of the line.

WESTERN BRANCHES. The level of the Paddington branch may be preserved for many miles, to the west of the principal line. And when the many inconveniences and natural impediments of the Thames navigation are considered, the completing the system of canal communication seems to call for it. Wherever this level meets that of the Thames, an easy and almost natural union may be made, affording a length of canal, unknown in this country without a lock, and supplying plenty of water for every purpose, at or near London; and from a source where such supply can be spared without any material detriment. But the meeting the Kennet at or near Reading, holds out more distant, as well as more numerous, and still greater advantages. This subject, it is now hoped, is seriously taken up.

By this line, and the Kennet, and Avon, the port of Bristol will have a water conveyance to London, not 30 miles longer than that by land: Reading will be within four or five miles as near as the shortest road, and with only three locks.

The peat and its ashes near this line, are objects of immense agricultural consequence; one of the leading advantages of these concerns, being to convey manures cheaply and easily to great distances: and there are perhaps, but few instances where so rich a substance, and inexhaustible in quantity, can prove more useful than this promises to do, to a great extent of country near the Grand Junction Line.

When once a canal is carried over or across the Thames, it may be easily made to communicate with different points of that river, as necessity may point out, or even carried to the mouth of the Thames and Severn Canal.

The easy and improved connections these branches hold out to all the western counties, and even South Wales, are

scarcely inferior to those, the original line promises to the Midland and northern.

In proportion as the Thames navigation is likely to be affected, its proprietors ought to be indemnified; but the whole country on each side that noble river, promises to be benefited in proportion to the variety of points, it communicates with well constructed canals.

The convenience of passage boats to Uxbridge is already felt, and these will certainly increase, from not being troubled with locks towards the west. It may become an agreeable relief to reach Reading, or even further by water, in journies to Bath or Bristol, at least in the summer: and for economy there can be no comparison.

If there is one part of the great system that will be in more use than any other, it most likely will be that between the extremity of the Paddington line and the entrance of the western branches, particularly at this last mentioned point. May we not expect to see here the commerce of half the kingdom, that cannot more commodiously or more cheaply be sent coastwise, seeking its best market, the Metropolis? The London manufactured and imported articles in the same proportion, travelling the contrary way. Sea coal, Staffordshire and Somersetshire coals, perhaps, will be going in all directions at once, each correcting any deficiency or exorbitancy of price in the other. Even dung, ashes, and soot from London, lime and chalk from the north, and peat from the west, may cause as many vessels to pass this point, as at present in its infant state exist. But when those loaded with every kind of provision for the Metropolis, and vessels for pleasure are added, the daily number passing this spot, may amount to more hundreds than some people are willing to allow scores.

(To be continued.)

CRITICAL CATALOGUE.

- I. *Observations on the Structure, Economy, and Diseases of the Foot of the Horse, and on the Principles and Practice of Shoeing.* By Edward Coleman, Professor of the Veterinary College, Principal Veterinary Surgeon to the British Cavalry, and to his Majesty's most Honourable Board of Ordnance, and Honorary Member of the Board of Agriculture. Vol. II. royal 4to. 3l. 13s. 6d. boards.

THE Veterinary Student will doubtless be inclined to expect considerable gratification from this volume, but we fear he will be disappointed to find the information it contains, so very disproportionate to its price. It appears, in fact, to contain very little new. The observations on shoeing are, in a great measure, a repetition of what Mr. Coleman published on the same subject in the former volume.

As a work of practical investigation, and designed for general utility, it is to be regretted, that the price places it beyond the reach of any, but a few affluent individuals, or of those who purchase a work not for the purpose of perusing it, but merely as an addition to their libraries.

Mr. Coleman divides his work into four distinct parts, in order to examine the structure and functions of the contents of the hoof, on the nature and knowledge of which he asserts, that the principles and practice of shoeing adopted by the Veterinary College, are founded. He first considers the bones of the foot, with their ligaments and cartilages.

Secondly, the coverings of the coffin bone, namely, the sensible laminae, sensible sole, sensible frog, and sensible bars.

Thirdly, the muscles and tendons, by which the bones are put into motion.

Fourthly, the arteries, veins, nerves, and absorbents.

After treating of the above subjects in the order enumerated, he then vindicates the manner of shoeing adopted at the College, from the objections made against it; successfully combats Mr. Moorcroft's practice, in recommending the seated shoe as inconsistent with the principles he professes in common with the author.

As no part of the animal economy of the horse, is more liable to derangement or disease than the substances composing the foot, none therefore, demands more accurate investigation in order to ascertain the causes of those diseases, which, if not timely checked, infallibly terminate in depriving man of the assistance of this valuable servant.

There is no point on which the opinions of Veterinary Practitioners are more at issue than the method of shoeing. Every one who has devoted the smallest degree of attention to the structure of the foot, must be aware that an improper system of shoeing cannot fail to produce the worst consequences. The difference that exists on this head, amongst the professors of the Veterinary Art, is therefore the more to be regretted. Mr. Coleman, as we have seen, lays down a method that disagrees with Moorcroft's practice, and we observe, that the manner recommended by the former, differs from the principles inculcated by Mr. White, whose popular and useful manual we noticed in a former Number of the Agricultural Magazine.

For the sake of contrasting the opinions of those two writers on this subject, we shall introduce their own words,—Mr. White, (page 166,) says :

“ It will probably be observed of the shoe which I have recommended, that it is inconsistent with the principle of the frog's receiving pressure. I believe it is an incontrovertible fact, that unless the frog receives a certain degree of pressure, it will become soft, and incapable of affording sufficient protection to the sensible frog which it covers; that the heels will gradually contract, and the natural form of the foot be destroyed; for I have proved by experiment, that the bars alone are not sufficient to prevent contraction, though they certainly oppose it with considerable force; but it does not follow from this, that it is necessary for the pressure to be constant, nor do I believe, that a shoe which allows the frog to bear upon the ground,

when the animal stands upon a plane hard surface, can be always applied even to sound feet without inconvenience. There is no doubt, that a horse in a state of nature, has his frog almost always in contact with the ground, and then of course, he feels no inconvenience from it; but when burthens are placed upon his back, and he is driven about upon hard roads, he is certainly on very different circumstances, and if the frog in such cases, were constantly exposed to this severe pressure, it would sometimes, I believe, occasion lameness."

Let us now hear Mr. Coleman.—

"If the frog be raised above pressure, and exposed to heat without moisture, I believe there is no system of shoeing that can possibly preserve the hoofs of horses circular. It therefore follows, that when the frog receives pressure from the ground, the cartilages, the quarters, and the frogs, are preserved expanded, and perform their functions, and the heat of the stable is generally incapable of producing contraction; but the frog being raised above the ground, the cartilages lose their functions, and have no power to resist the contraction of the crust. These circumstances, therefore, fully explain what has been often repeated, that whatever form of shoe be adopted, if the frog does not receive pressure in the stable, at rest as well as in motion, the heels of every individual horse will be more or less liable to contraction, as they are exposed to more or less heat: and whatever form of shoe be used, if the frog, when at rest, is on a level with the heels, the sole properly thinned, and the horse allowed a proper degree of exercise, the hoof will continue circular."

We have only farther to observe, that the plates to this volume, fifteen in number, are outlines coloured by the hand in a very superior style, and are admirable representations of all the important parts of the foot. To each plate is annexed a descriptive and explanatory reference.

II. *Lettre sur le Robinier, &c.—Letter on the Robinia or False Acacia Tree, with several pieces relative to its culture; by N. François de Neufchateau, Member of the Conservative Senate, and of the National Institute.*

THE French Government has for a considerable time, directed its attention towards the preservation of the forests, and the means of multiplying plantations.

Increasing wants, luxury, and the progress of the arts and manufactures, have prodigiously augmented the consumption of wood; the administration perceived, that a ruinous scarcity of that material would be the consequence of that state of things. Agriculturists, ever solicitous to render themselves useful, eagerly partook of its cares, and considered of the improvements that were necessary. In a situation for obtaining a more perfect knowledge of the urgency of such wants, and the means of diminishing them, Mr. François de Neufchateau has called the attention of the public to the False Acacia, a tree which has almost become indigenous, and so easy to be multiplied in such a variety of ways, to be reared in every climate, and in every soil, even the most uncultivated.

His opinion, on this head, which alone would carry with it very great weight, is confirmed by that of M. Bohadsch, M. Hall, M. Saint-Jean de Creve-Cœur, Filassier, Dettmar-Basse, Miller, Chal-

lan, Muller, &c. whose memoirs he has collected, and to which he has added the most instructive notes and remarks. His work is certainly the most complete and interesting of any that has yet appeared on this subject.

M. François de Neufchateau has not simply confined himself to an indication of the advantages that may be derived from this tree, considered as an article of consumption. He treats of its utility in the different arts; in fact, it is employed with success either for turnery or cabinet-making. It likewise forms impenetrable hedges; it makes vine poles, and hoops, and adds to our enjoyments by the colours which may be extracted from it.

The public is under great obligations to M. François de Neufchateau, for the zeal with which he demonstrated the various purposes to which it may be applied, and with which he endeavours to do justice to the memory of the man to whom France is indebted for this tree.

At the conclusion of the 16th, and beginning of the 17th century, during the storms of a revolution, of which ambition was the motive and religious fanaticism the pretext, arose two men, strangers to every one, eager after knowledge, ardently desirous to render themselves useful, who contemplated, amidst the tumult of armies, the means of consoling mankind and their country, for the misfortunes inseparable from civil commotions; which armed citizen against citizen, brother against brother, and children against the authors of their existence.

One of these was Olivier de Serres, Lord of Pradel, who saw his castle and his farm house a prey to the flames; the other Jean Robin, the Jussieu of his age. Almost all Lexicographers have omitted in their collections, these two respectable names; but gratitude had engraved on the mind, the remembrance of the immortal author of the *Theatre of Agriculture*.—(See No. 40, page 374, of the *Agricultural Magazine*.) and of the celebrated botanist, who commenced a course in which he proceeded with gigantic steps, by tracing the plan of a garden of plants, the grandest and most magnificent of its kind in Europe, and to which the talents of the Messrs. Thouin are daily adding fresh lustre. Jean Robin naturalized, in France, that invaluable tree which Linnæus calls *Robinia pseudo Acacia*. The term Robinia was an homage of gratitude, rendered by talent to ardent and disinterested zeal. A blind habit has still preserved the appellation of false Acacia, and continually leads into error those who are ignorant that the real Acacia is an African tree found in Egypt and the deserts; that it is denominated by the Arabs *om gaïllan*, (which according to D'Herbelot signifies, *the mother of satyrs or the demons of the forests*.) It is the sap of this tree, which forms the gum sold to us under the name of gum arabic.

During his too short administration, (which although at a period far from tranquil, was remarkable for the judicious encouragement bestowed on agriculture and the arts,) M. François de Neufchateau thoroughly convinced of the advantage of multiplying the Robinia, never omitted this important subject, in his circular addresses to those in office and to the public; he even pressed it into

his exhortations with a kind of importunity, if that term may be applied to the ever increasing zeal of a minister who can and is determined to do good. Above a million of Robinias on the surface of the Republic, owe their existence to that indefatigable zeal which knew no bounds. Since that time plantations of the Robinia have multiplied, and are multiplying in every quarter, and M. François de Neufchateau enjoys the satisfaction of having been the occasion of them, combined with the grateful sentiment of public gratitude.

III. *Instructions elementaires en Agriculture, &c. Elementary Instructions in Agriculture; translated from the Italian of Adam Fabroni, of the Royal and Economical Academy of Florence; augmented and adapted to the soil and climate of France, by Alexander Vallée, to which is annexed, a Letter from the Author to the Translator.*

THE name of Fabroni, known to such advantage throughout all Europe, justifies the reception which this work has experienced. The translation was very anxiously expected.

The author has selected the most important agricultural subjects; in several dialogues he treats of the earth, seed, crops, trees, meadows, &c. The questions are clear and precise; the answers ready, just, and simple.

Fabroni adopted the form of dialogues in conformity to the plan of the Archduke Leopold, afterwards Emperor of Germany, who had requested him to write some elementary lessons suited to the farmers and peasantry in his dominions.

In translating them into French, M. Vallée, sensible that the difference of the climate required some variation in practical agriculture, has adopted the principles of Fabroni to the soil of France. It is a work that cannot but be held in the highest estimation by all the lovers of agriculture.

IV. *Nouveau Dictionnaire d'histoire naturelle, &c. A new Dictionary of Natural History applied to the Arts, principally to Agriculture and Rural and Domestic Economy. To be completed in about 20 volumes, 8vo. embellished with plates.*

TO collect recent discoveries, to combine the scattered observations of modern naturalists with the notions before acquired, to present an epitome of the matter dispersed through a great number of books, so as to form a substitute for a library of that kind; to give it the most convenient size, and best adapted to propagate instruction, and facilitate research; such is in part the aim of the work here announced. The method adopted to avoid all ambiguity is accuracy in description, as indispensable to precision and clearness in the sciences, as the definition of words in common conversation. Each article commences with a faithful but not too minute sketch of the object to which it is devoted, and to render it the more intelligible, particularly to foreigners, every name or title of an article is accompanied with the designation employed by Linnæus, Latham, and other authors. Anatomical details are not introduced into these descriptions; they form a distinct science, which is only touched upon generally. The editors have, however, not neglected

to point out the most remarkable peculiarities in the anatomy, and internal organization of various animals, and have not omitted short dissertations on any interesting critical subject. After the descriptions, they give a picture of the manners and habits of animals, as well as of the properties of inanimate substances.

A great advantage not to be met with in any book of this kind, and which will, no doubt, enhance the value of this work, is the analytical index which accompanies it, by means of which one may learn natural history as in an elementary book. Besides this the preliminary discourse presents a rapid, but yet sufficiently prolix account of the present state of the science, and the means of accelerating its progress.

But this new dictionary is not confined to this single circle of knowledge. Whatever attractions natural history may have, whatever charms may be discovered in the observation and contemplation of the various works of the creation, the mind is not completely satisfied if these remarks tend only to afford barren information, that is, without any fruit for public or private advantage. It is by studying the manners of animals that we learn the best methods of rearing, preserving, and taking care of those which man has conquered; that we know how to ensnare the wild ones, whose flesh furnishes us with food, or whose spoils supply an article of trade: that the produce of the fisheries is augmented; that insects, and shell fish become the most powerful agents of the wealth of nations, by means of the substances which they afford for arts and manufactures; and lastly, that we wage a successful war with rapacious animals, we preserve ourselves from their attacks, and prevent the frequently excessive multiplication of some species. It is by the precepts of vegetable physiology that we distinguish the soil in which the seed of plants is most vigorously developed, the most proper method of cultivating those which serve for the food or clothing of man, the care and management required by those transplanted from a foreign soil, the most profitable purpose to which they may be applied in the arts and economy; the signs by which malignant plants may be known, &c. It is by the exercise of mineralogy that we make ourselves acquainted with the principal chemical properties of minerals, and their employment in the arts or in medicine, and that the proprietor knows of what kinds of land his estate is composed; whether it contains fertilising marle, coal, minerals in sufficient quantity to induce the erection of forges, if a specimen of an ore promises an advantage adequate to the expence of raising it, &c.

It is well known what powerful influence the state of the atmosphere, and most meteors possess over the animal economy and agriculture; a point is made of describing them in this work, and likewise, the most striking phenomena, as the tides, volcanoes, water-spouts, hurricanes, &c. and to render it as complete as possible, elementary notions are given on natural philosophy and astronomy, with a sketch on the connection between the earth and the celestial bodies, and on the reciprocal action of the one on the other. Lastly, it will be found to contain a satisfactory analysis of all the experiments made to the present time, in electricity and galvanism, those

two active agents diffused through animated beings as well as unorganized substances.

Such is the vast and entirely new plan of this dictionary. It could not be the work of an individual; thus, each of the writers in it (who are mostly members of the National Institute) has undertaken that part with which he is the most familiar. The old dictionaries of natural history, putting the later discoveries out of the question, contain very little relative to agriculture and rural economy, and those which treat of these two arts, have not combined natural history with them. Independent of natural history, the present work embraces whatever it furnishes to agriculture, rural and domestic economy, commerce, and the arts.

Natural history has been so augmented within these 30 years, its application to the arts, to agriculture, and to every object of utility or luxury, has received such extensive developments; such numerous discoveries have been made, that it is impossible to fix the exact number of volumes necessary to complete this dictionary, of which three have already appeared. It may be considered as a real encyclopedia of natural history, in which nothing of importance or utility will be omitted. It will be embellished with figures designed from nature, of the most useful, most interesting, or least known subjects in the three kingdoms of nature.

The authors give in general a figure of each genus, in the classes which are least familiar to most readers, as fishes, insects, reptiles, shells, worms, &c. They likewise give an engraving of all foreign plants which are known only to a few, although of great importance to man, either as articles of food, or as primary materials in the arts, and consequently, interesting subjects to be acquainted with.

In short, in order that the man of science, and the student, the amateur, and he who wishes to obtain a more profound knowledge, may equally find in this new dictionary all that can interest them, and to make it an elementary and truly national work, the generic characters of every part of natural history will be given at the conclusion, on such a number of plates that each character may appear distinct, and be easily recognized.

It will be published three volumes at a time. The first three vols. have just made their appearance, and come down to the word *Cheval* (Horse.) The price at Paris is 19 francs 50c. but in future, each volume will be charged 1 fr. more. The next three volumes will be ready for delivery at the end of February.

HISTORY. National Transactions.

HOLLAND.

IT is said that an arrangement is negotiating between the Batavian Government and the Prince of Orange, by which the latter will receive an indemnity for the loss of some of his property, situated in the Dutch territory. His Serene Highness, it is also reported, will exchange his newly acquired territory of Fulda for the duchy of Berg.

The legislative body has published an account of the expenditure for the ensuing year, which is considerably less than those of former years. The expenditure for the charges of government, of the legislative body, and of the tribunals of justice, amounts to 1,085,888 florins, for the maintenance of the army, magazines, fortresses, &c. 8,170,825 florins; for foreign ministers, &c. 592,410 florins; for the marine 4,298,272 florins. The Council for the West Indies receive for the expences of the Colonies this year 1,565,738 florins, and the sum of 1,500,000 florins will be advanced to the East India Company.

The Legislative Assembly has definitively resolved that till the 1st of Dec. next, woollen cloths of all sorts may be freely conveyed through the territories of this republic, and bought and sold in it for foreign use; but that the importation of such goods for home consumption shall, from the date of this law, be entirely prohibited, and that only the foreign woollens now in the warehouses shall be permitted to be sold for use in that country.

GERMANY.—On the 5th of January the Emperor ratified the convention, concluded on the 26th of December, relative to the supplementary indemnities to the Grand Duke. The treaty is signed by the Russian as well as the Austrian Minister.—Austria cedes the Ortenau to the Duke of Modena, and receives in exchange the Bishoprics of Trent and Brixen, to be incorporated with the Austrian monarchy. The Grand Duke invited to renounce Trent and Brixen, obtains the Bishopric of Eichstadt, except the six superior bailiwicks of that country, which are to be united to the principality of Wurzburg; he also obtains a part of the Upper Palatinate, but he formally engages not to fortify Eichstadt. Bavaria is to preserve the six superior bailiwicks of the Bishopric, but is to indemnify the Grand Duke, by ceding property which the Elector possesses as Duke of Deux Ponts in Bohemia. The Elector keeps all his possessions on the Inn, and the Town of Passau is to be ceded to him by Austria. The Elector Arch Chancellor obtains all the tolls of the Rhine on the right bank. Prussia is to keep part of the territory of Nuremberg, which she occupied last year.

The Margrave of Baden, at the request of the French government, intends to augment his troops to 10,000 men.

ITALY.—Their Majesties, the King and Queen of Etruria, with their suite, arrived at Leghorn on the 7th of January, on their return from their voyage to Spain, and were expected at Florence on the 13th. The King of Etruria has at length been acknowledged by the Cabinet of Vienna.

A new constitution has been made for the island of Elba. It is to be governed by a Commissary General, and a Council of five persons to be appointed by the First Consul.

Prince Ruspoli, it is said, has at length determined to accept the Grand Mastership of the Order of Malta, having been invited to do so by the Pope, and at the request of some great powers.

The French Squadron at Genoa has sailed from that port for St. Domingo, with the whole of the Polish brigade, consisting of nearly 3,000 men.

SPAIN.—The Court of Madrid has obtained from the Pope a Bull, which authorizes the Archbishop of Toledo to suppress as many convents as he may think proper throughout the whole kingdom of Spain.

It is confidently stated, that the once formidable Tribunal, the Inquisition, is to be entirely abolished. The recent release of M. de Urquyo, who had been disgraced and banished for having declared himself hostile to that institution, gives great probability to the report.

TURKEY, *Constantinople*, Dec. 27. — According to intelligence from Alexandria eight English ships have arrived, to take on board the English troops in that country, and to convey them to England. The Adjutant of General Stuart arrived a few days ago, and will this day have an audience of the Reis Effendi. Nothing has yet transpired respecting the contents of the

dispatches which he brought, and which have been delivered to the Grand Vizier.

In consequence of an express and repeated request made to the Porte by the Russian Ambassador, permission has been granted to the Spanish, Neapolitan and Dutch merchant ships to navigate freely the Black Sea, and carry on trade in the Russian harbours there, but with this restriction, that they are to be restrained from the farther privileges granted to the French and English of trading in the Turkish ports in that sea, and of establishing Consuls in them.

Colonel Sebastiani has made a report to the First Consul of his late visit to Egypt, Syria, and the Isles of the Levant. It appears that he was charged with two important duties, to demand from the British Commander in Alexandria the immediate evacuation of that fortress, and to mediate a peace between the Porte and the Beys: but in both points he has failed. Although commerce is the avowed object of his mission, yet, from the attention paid by him to the state of the armies of the different military positions, and the fortresses, it appears that he has acted more in the capacity of an engineer than as an agent for trade.

At Algiers the influence of France has been again felt, and the Regency has been obliged to sign a treaty of peace with Denmark, upon terms much less favourable to its own interests than it would have done, but for the interposition of the First Consul.

FRANCE.—The First Consul displays the greatest vigilance and activity in sending out re-inforcements to St. Domingo, and in adopting measures which may contribute to the restoration of the French trade and fisheries.

It is said that the First Consul will himself visit the site of the new fortresses, to be built between Mentz and the Dutch frontiers; he will then decide between the different plans presented by General Andreossi, and the Commissioners of Officers of the Artillery and of Engineers, who have been to the Banks of the Rhine.

The best informed merchants at Antwerp, Ghent, Brussels and Louvain, are employed in drawing up memorials upon the means of restoring the trade of Belgium. These memorials will be presented to the First Consul during his journey through that country.

The law prohibiting the exportation of silk from Piedmont has been revoked, and new regulations substituted, which allow the exportation of that article, upon the payment of certain duties. In these regulations the French Council of State wishes to render Lyons the great mart of the commodity, and to check the commerce of England with Nice; the duties laid upon it at the latter place being higher than those imposed at Lyons.

The Government has definitively organized the Reformed Protestant Church at Paris. It has established a Consistorial Church, and granted for the celebration of the reformed worship the edifice of St. Louis de Louvre, the Pantheon and of St. Mary.

General Laines is about to resume his situation at the Court of Lisbon, as Minister Plenipotentiary from the French Republic.

The French Government has resolved that henceforth no marriages shall be celebrated between Whites and Negroes or Negresses.

Joseph Felch, Archbishop of Lyons, uncle of the First Consul, Boisgelin, Archbishop of Tours, and Cambaceres, Archbishop of Rouen, are proclaimed Princes and Cardinals of the Church of Rome.

AMERICAN STATES.—Accounts from America assert, that the greatest alarm has been spread throughout the United States, by the shutting up of the port of New Orleans against the American commerce. The right of the subjects of the States to the freedom of commerce on the River Mississippi and to the making of New Orleans a depot for their merchandize, cannot be contested, having been recognized by a solemn treaty, and acted upon without interruption until the present moment.

The Spanish Governor, General of Louisiana, is said to have acted in this affair merely according to instructions received from Madrid. If such be the fact, we may anticipate a very serious issue to the question, as not only the American legislature, but the great mass of the people also, are indignant at this violation of their established right, and seem determined to resist it by every possible exertion.

ST. DOMINGO.—General Rochambeau the successor of Leclerc in the chief command in this island, has not only placed the Cape in perfect safety from the attacks of the Blacks, but has even resumed offensive operations, and by a well planned expedition, recovered the important post of Fort Dauphin.

His able and prudent administration of affairs continues to give general satisfaction both to the planters and inhabitants, and to the foreigners whose relations with the colony are of a commercial nature. A fresh reinforcement of about 2000 men arrived in December at Port Republicain.

GREAT BRITAIN.—The subject which has most interested the public mind during the preceding month, has been the trial and execution of the unhappy wretches, whose traitorous designs had for their aim to involve their country in all the horrors of anarchy, massacre, and confusion.

After the most fair and impartial hearing, their leader, Colonel Despard, and nine of his accomplices were found guilty of the crime of which they were accused, and he with six of his deluded associates accordingly suffered the punishment so justly incurred by their meditated atrocities.

It is with the greatest pleasure that we observe from accounts from every part of the united kingdom, that trade and manufactures are in a state of increasing activity, and that there is an augmented demand for the productions of British industry, notwithstanding the attempts of our continental neighbours to check our commercial operations.

We shall now briefly take our accustomed survey of the most important subjects which have been submitted to the consideration of the two houses of parliament since their meeting.

HOUSE OF LORDS.—*Tuesday February 8th.* The ordering for going into a committee on the woollen manufacturer's Bill being read, Lord Pelham rose for the purpose of moving that its commitment should be postponed until that day month. His reason for this motion was, that a number of the acts which the bill proposed to be suspended were in fact already repealed, and there were others which required very mature consideration before the measure could be farther proceeded in. A new order was accordingly made for taking this subject into consideration on the 8th of March.

Thursday February 17th. Lord Pelham moved the first reading of the Bank Restriction Bill, which being done, Lord Moira said that no measure ever called more loudly for discussion and for explanation on the part of ministers. He contended that the restriction produced the unfavorable state of exchange, and that no necessity existed for the measure. He concluded by moving for the production of a string of documents relative to the affairs of the bank, which after a very able answer to his Lordship from Lord Pelham, were agreed to be given.

HOUSE OF COMMONS.—*Monday February 7th.* The Sheriffs of London appeared at the bar and presented three petitions. The first prayed for leave to bring in a bill for enlarging Smithfield market, the second for a bill for establishing a regular market for the sale of coals, and the third prayed for a loan to enable the corporation to carry into execution, the bill for improving the port of London.

Mr. Addington then moved for leave to bring in a bill for continuing the restriction of the cash payments of the bank for a limited time. After a debate in which Messrs Fox and Tierney spoke in opposition, leave was given to bring in the bill.

Tuesday February 8th. The report of the committee of supply on the Irish Miscellaneous Services was brought up, and after some conversation in which Mr. Corry and Mr. Wickham took part, relative to the erection of houses of industry in the country districts of Ireland, the different resolutions were agreed to.

Friday February 11th. Mr. Addington moved the committal of the Bank Restriction Bill. The order having been read, the Attorney General moved an instruction to the Committee to make provision in the bill, declaring bank notes a legal tender, and thus doing away a difficulty which had occurred in the courts of law.

Mr. Addington next moved that the blank for the continuance of the act should be filled up with the words, "six weeks after the commencement of the next session of Parliament," which was agreed to. The bill was read a third time on the 14th. and on the same day Mr. Manning brought up a petition, praying for leave to bring in a bill for making a canal from the Grand Junction Canal at Paddington, to the London docks at Wapping.

Tuesday February 15th. Mr. Charles Dundas presented a petition from the brewers of Berkshire, praying relief from the late additional duties on malt. Petitions to the same effect from different parts of the country, were presented by several other noblemen and gentlemen.

Mr. George Rose brought up a bill for abolishing certain petty customs, and for improving the town and harbour of Southampton.

On Wednesday the 16th. a message relative to the discharge of the Prince of Wales's debts was read, and referred to a committee of the whole House.

Agriculture.

AMONGST other effects of the late storms, such a quantity of sea weed has been thrown ashore at Brantton, Yorkshire, the estate of Sir Francis Boynton, that it is imagined there are 15,000 loads of this manure. There are daily to be seen from 50 to 70 carts and waggons carrying it into the country, and it is imagined there will be a quantity sufficient to manure the estate for the two ensuing years.

We are happy to hear that the spirit of improvement in Agriculture that has of late years made such rapid progress in the county of York, has extended to the North Moors. A subscription has been entered into by the farmers of Whirby Strand and Pickering Lythe, to which a very liberal donation has been added by Sir Richard Johnstone, baronet, for improvements in husbandry, the breed of cattle, &c. A committee is already appointed, and there is no doubt but that the proprietors of estates in that neighbourhood will contribute to so laudable an undertaking.

We understand that some samples of wool have lately been brought home from Port Jackson, shorn from sheep of the Spanish kind, bred in New South Wales, and it is said, that these samples are quite as fine as the wool of the native Spanish sheep, from which this breed was obtained.

The Berkshire Agricultural Society at their meetings held in 1802, have voted the following premiums for the present year, to be adjudged at Ilfley on the day preceding the day of business of the Summer assizes for that county, that is, on the Monday, if that is the commission day for July, if on a Saturday, then on the Wednesday following.

LAMBS. To the person who shall produce 20 of the best horned ewe lambs, lambed and bred in Berkshire.—three guineas.

The same for 20 of the best Berks Notts.

The same for 20 of the best Cotswold.

The same for 20 of the best Southdown breed.

The same for 20 of the best Leicester breed.

The same for 20 of the best of the above, or any cross breeds.

TWO TOOTH SHEEP. To the owner of 15 of that score of lambs which were shown at last Illey show, which shall at the next show in 1803, be shown as two tooth sheep, and be adjudged the best, and to have improved the most, so as in some degree to determine the best and most useful sort.—three guineas.

To the owner and breeder of 20 of the best two tooth, horned sheep, lambled and bred in Berks.—three guineas.

The same for 20 of the best Berks Notts.

The same for 20 of the best Cotswold.

The same for 20 of the best Southdown breed.

The same for 20 of the best Leicester breed.

The same for 20 of the best of the above, or any cross breed.

RAMS. To the owner and breeder of the best two tooth Ram of each of the above sorts, bred in Berks.—two guineas.

N. B. The Rams must not be shorn before the 1st of May, and the fleece must also be produced. Each lot of sheep shewn, shall have been bred in the same stock, and belong to the same person.

SHEEP SHEARERS. Premiums of 3, 2 and 1 guinea will be given to the first, second and next best shearers resident in Berks, who shall shear a sheep in the best and most complete manner, at the next Illey shew, the shearer to produce and shear his sheep on the spot, which must be a folding sheep.

SHEPHERDS. Premiums of 3, 2, and 1 guinea will be given to three shepherds who have resided the greatest length of time in the same service, with any member of this society, or the predecessor of such member.

In order to call forth the attention of all cultivators to the best and most useful sorts of ploughs, and for the encouragement of good ploughmen, the following premiums are offered :

To the owner of the best constructed plough which shall be worked by the best and cheapest team of either oxen or horses, a piece of plate value ten pounds.

To the best ploughman two guineas.

To the second one guinea.

To the next half a guinea.

Rewards to industrious labourers and servants in husbandry. To the labourer in husbandry who has reared the largest family without assistance from parochial relief, two guineas.

To the second one guinea ; to the next half a guinea.

To the woman servant, two guineas.

To the second one guinea ; to the next half a guinea.

To the person being the maker who shall then and there produce the most useful implement in husbandry, not in common use, five guineas.

To the next best, two guineas.

To the maker of the lightest, strongest and best constructed Berkshire waggon, which shall be then and there produced, three guineas.

To the maker or owner of the lightest, strongest and best constructed cart fit to be used with a single horse, for the carriage of burthens, or removal of gravel, chalk, dirt or dung, two guineas.

The following will be adjudged at Wantage, the second Saturday in October, 1803.

To the owner of the best constructed plough that shall be worked by the best and cheapest team of either horses or oxen, a piece of plate value ten pounds.

To the best ploughman two guineas ; to the second best one guinea, and to the next half a guinea.

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CATTLE. For the best fat cow which shall have been kept in Berkshire, for the last year.—three guineas.

For the best boar kept and used in Berks, from Christmas to October.—two guineas.

For the best two year old heifer.—two guineas.

For the best cart colt.—five pounds.

TURNIPS.—To the owner, being a member of this Society, who shall, in October, 1803, have the best crop of turnips, not less than five acres, three poles of which shall be selected and weighed, in the presence of two other members of this Society—a piece of plate, value five guineas. The member, intending to become a candidate for this prize, to give notice to the Secretaries before the 1st of October, 1803, and stake a guinea, which is to be returned if he gains the prize. The Secretaries are then to request one or more of the members, resident near the candidates, to view the crops, and report the same at the ensuing meeting in Wantage. The staking to go towards the expences of the members taking the view, and if not sufficient the remainder to be defrayed from the funds of the Society.

FOR PROMOTING THE WELFARE OF COTTAGERS.—To the cottager who shall, in the course of 1803, have the larger number of bee-hives; the numbers of hives and swarms to be certified by a member of this Society—two guineas.

To the landlord who shall, previous to this anniversary meeting at Wantage, in the year 1803, have laid the greatest quantity of land, not more than half an acre each, in lots to cottage-houses, and furnished the cottagers with young apple-trees—a piece of plate, value 10*l*.

To the cottager who, before that time, shall have raised and maintained the best bounds round such allotment, and have well and sufficiently nurtured and protected such trees—two sacks of malt, or the value thereof.

FOR PROMOTING THE USE OF SICKLES INSTEAD OF REAP-HOOKS.—To the young man, under twenty-one, who shall have reaped the greatest quantity of land with a sickle, never having used one before the year 1803—two guineas.

To the young woman under 21, the same reward.

Rewards to husbandmen will be distributed on the days of meeting at Wantage, similar to those distributed at Reading.

For the encouragement of ten of the most industrious persons in husbandry, who labouring under any bodily infirmity, shall have continued to labour notwithstanding such infirmity, each half a guinea.

Also to the parents of the children (under 12 years of age) who shall prove to the Committee that they have been most usefully employed in husbandry, one guinea.

At a meeting of the South-Devon Agricultural Society, held at the London Inn, Ivybridge, on Wednesday, the 2d of February, 1803, Paul Treby Treby, Esq. in the chair, it was resolved, that the Society should in future have but one general meeting, and that it should be held annually on the first Wednesday in June—that as the improvement of all kinds of farming stock appears to be most beneficial for the improvement of the South-Devon district in a general point of view, the ensuing general meeting is appointed solely for that purpose—that the said general meeting shall be held at the London Inn, Ivy-bridge, on Wednesday, the 1st of June, 1803, at eleven o'clock precisely—that no claimant shall be allowed any of the following premiums whose stock is not produced at or before twelve o'clock, and that the following premiums only shall be offered to the public for the year 1803, and distributed under the usual restrictions:

For the best stallion	_____	5	5	0
For the second best ditto	_____	3	3	0
For the best bull	_____	5	5	0
For the second best ditto	_____	3	3	0

For the third best ditto	_____	2	2	0
For the best breeding cow or heifer	_____	5	5	0
For the second best ditto	_____	3	3	0
For the best ram	_____	5	5	0
For the second best ditto	_____	3	3	0
For the best hog, or two-toothed ditto, bred in this district	_____	5	5	0
For the second best ditto, ditto	_____	3	3	0

The same sheep to obtain only one of the above premiums.

For the best lot of breeding ewes, not less than six, the property of one person,	_____	5	5	0
For the second best ditto, ditto	_____	2	2	0
For the best lot of two-toothed or hog ewes, not less than six, the property of one person,	_____	3	3	0
For the best fat wether sheep, to be killed on the spot, regard being had to the live and dead weight, and fed in this district, on grass, hay, turnips, potatoes, or any other green vegetable food,	_____	2	2	0
For the second best ditto, ditto	_____	1	1	0
All the sheep are to be produced in the wool.				

For the best boars	_____	2	2	0
For the second best ditto	_____	1	1	0

Satisfactory certificates of the ages of all the cattle, and of the food of the fattened sheep, to be produced to the Secretary previous to the exhibition.

For the best ram's fleece, to be shorn on the spot	_____	2	2	0
For the second best ditto	_____	1	1	0
To the best sheep-shearer	_____	2	2	0
To the second best ditto	_____	1	1	6
To the third best ditto	_____	1	1	0
To the fourth best ditto	_____	0	10	6

There will be a ploughing match at Marazion, in Cornwall, on Tuesday, the 8th of March, 1803, for the following premiums, offered by the Cornwall Agricultural Society.

Best ploughman, three guineas, or a coat and waistcoat—his driver half a guinea.—Second best ditto 2l. 2s. or a coat—driver 5s.—Third best ditto 1l. 1s. or a jacket—driver 2s. 6d.—Best plougher, a parish apprentice, 1l. 1s. or a jacket—driver, a parish apprentice, 2s. 6d.

The trial to be made in a ley field, as for a crop of oats. Ploughs of any description to be admitted. The owner of each to enter the same three days previous to the day appointed for ploughing. The ploughing to begin precisely at eleven o'clock.

The following premiums are offered by the Society for cattle, to be produced at their annual exhibition, to be held at Bodmin on the first Tuesday in June next.

For the best bull	_____	£. 10	10	0
Second best ditto	_____	5	5	0
For the best ditto, not exceeding two years old,	_____	5	5	0
Second best ditto	_____	3	3	0

Satisfactory certificates of their ages to be produced to the Secretary.

For the best stallion	_____	10	10	0
For the best ram, free for all England	_____	10	10	0
For the second best ditto	_____	5	5	0
For the best ram, yeanned in Cornwall, the property of a person within the county,	_____	5	5	0
For the second best ditto	_____	3	3	0
For the best hog ram ditto, ditto	_____	5	5	0
For the ten best store ewes	_____	5	5	0
For the second best ditto	_____	2	2	0
For the best boar	_____	3	3	0

The owner to have the above live stock in his possession in the county, excepting the rams free for all England, at least one month before the exhibition; fourteen days notice to be given to the Secretary of their exhibition.

For the best fat wether sheep, under three years old, slaughtered, fed in Cornwall, on grafs, hay, turnips, potatoes, or other green vegetable food,

3 3 0

For the next best ditto

2 2 0

For the best ditto under two years old

3 3 0

For the heaviest entire fleece of wool from a ram, regard being had to value per lb. the time of growth, and the weight of the animal producing such fleece

2 2 0

For the best ditto from a ewe

2 2 0

To the best shearer of sheep

3 3 0

To the second best ditto

2 2 0

To the third best ditto

1 1 0

To the fourth best ditto

0 10 6

To be entered with the Secretary fourteen days previous to the exhibition.

For the cart which shall be most approved of for strength, lightness and cheapness of construction, and for its general fitness to be used both on fields and roads

5 5 0

At a meeting of the Committee of the Essex Agricultural Society, held at Chelmsford on the 12th of January 1803, Charles Callis Western, Esq. in the chair; it was resolved that the same premiums be allowed for the encouragement of industry and good behaviour in labourers and servants as were given last year, and that the Secretary do advertise the same at the usual time. It was also resolved that the premiums for stock to be exhibited in the present year be adjudged as follows:

To the person who shall exhibit at the meeting of this society to be held at Chelmsford, on Friday 27th of May next, the best cart stallion, his own property, and which he shall engage to cover during the ensuing season within the county—the silver medal.

To the best bull, being two years old or more, the exhibitor's own property, and which he shall engage to use during the ensuing season within the county—the silver medal.

To the best cow or heifer, (then giving milk,) the exhibitor's own property, which shall be kept by him for the purpose of breeding; within the county—the silver medal.

To the best ram, growing a fleece, coming under the denomination of long or combing wool, the exhibitor's own property, which during the season, he shall engage to use or cause to be used within the county—the silver medal.

To the best ram, growing a fleece, coming under the denomination of fine or clothing wool, the exhibitor's own property, which, during the ensuing season he shall engage to use or cause to be used within the county—the silver medal.

To the best pen of three long wool ewe hoggets, bred by the exhibitor within the county, and his own property—the silver medal.

To the best two year old wether, bred and fed by the exhibitor, within the county, and having had neither corn nor oil-cake—the silver medal.

The rams are to be shewn in their wool, and the fat wethers to be shorn.

To the best fat ox, the property of the exhibitor, and having had the same twelve calendar months—the silver medal.

To the best boar, being not less than twelve months old, the property of the exhibitor, and which shall be used the ensuing year, within the county—the silver medal.

No person to be entitled to any of the above premiums for stock, to which at any former period, a premium shall have been adjudged; nor to any person who shall not have been resident in the county at least twelve calendar months, preceding the day of exhibition.

In the spring of 1801, Mr. Sheriff, Kinmyle, Inverness, bought a parcel of great ewes of the white-faced old Highland breed, at 7s. 7d. They lambed in March and April; the lambs were sold off the 1st of June. One old ewe, without a tooth, dropt a second lamb the 1st of November, 1801, which was killed the 29th of December, and for which 30s. were refused. On the 29th of April, 1802, she dropt a third lamb, which was taken off the beginning of June; and on the 12th of Jan. 1803, she dropt a fourth lamb, much larger than any of the former, being got by an English ram; so that this extraordinary ewe has yeaned four lambs, at different times, in the course of twenty-one months.

Sir John Sinclair has lately ascertained that peat earth, ashes, and common dung form together one of the best composts for manure that has ever been brought into use.

A remarkably fat pig was lately killed by Mr. James Godfrey, of the following dimensions and weight: height 21 inches, round its neck 53 inches, round its body 66 inches, from nose to tail 66 inches, its weight 23 stone $2\frac{1}{2}$ lb. leaf $23\frac{1}{2}$ lb. average about 15 lb. per inch. The pig was bred by Henry Bell, Esq. of Walkington, and fattened by Mr. John Brereton, of Brimston, near Holt, in Norfolk.

A few days since five young bullocks belonging to Mr. Clulton, at Hartwood, Sarry, were destroyed by the effects of yew, which they had bruted from an hedge. The poisonous nature of this plant has long been acknowledged, and many fatal instances of its effects are on record, but it being a prevalent notion that no cattle will touch till it has been severed some time, and its pointed leaves become clung, the public are informed of the above recent fact that this insidious inhabitant of old orchards and farm yards may not be trusted.

We have been favoured with the perusal of the following letter from the Duke of Bedford. As we deem the subject of importance to a considerable number of our readers, we gladly give it insertion.

Woburn Abbey, Dec. 1. 1802.—The Duke of Bedford, anxious to try the comparative merits of the various sorts of sheep in this island, proposes to the different breeders of each sort, to send him 20 wether lambs to Woburn, between the 13th of September and the 15th of October, 1803, accompanied by a certificate from the breeders of each, stating the period, as near as may be, when they were lambed. The Duke is willing to pay the full price for them, and all expences incurred on the journey. He requests those who propose sending them, to inform him by letter of their intention, in the month of August, or sooner, that he may have the opportunity of declining them, in the event of his having had prior notice of a lot of the same breed being to be sent from another quarter.

The Duke proposes to treat them in the following manner: they will be weighed as soon as they arrive, and again on the 15th of November. They will be then divided into two lots, ten of each sort. One lot shall be such as each breeder shall have himself previously marked as most likely to come to early maturity. These, on or about the 15th of November, will be put to turnips, as followers to the fatting sheep. In this manner they will be kept through the greatest part of the winter. In the last month or six weeks, if it be found practicable, their food will be weighed to them.

They will then be put to tolerable grass in the spring, and produced for the inspection of the company at the sheep-shearing 1804; at which time one of each sort will be killed, unless the breeders of the sheep should object to it. Out of the remaining nine, the breeders, if they are present, or if not, some person from the county where each sort was bred, will be requested to select four, which will immediately be put to good grass, and from that time pushed forward, with the intention of making them good meat as soon as possible. As fast as each sheep arrives at that state, he will be slaughtered, and a particular account taken of his live and dead weight, offal, &c. &c. Such as are

not fit to be killed from grafs, will be put to the best turnips and hay on the 25th of October.

The remaining five of each sort in this lot will immediately after the selection of the above-mentioned, be put to a rather bare pasture; such an one, however, as will promote their growth; and on the 1st of November they will be put to turnips, with a small portion of hay, and three of each sort, selected as before by the breeders, or their countrymen, at the sheep-shearing, 1804, will be slaughtered in the same manner as the four above-mentioned. The remaining two of each sort will be kept at turnips through the winter. In the spring they will be put to good grafs, and slaughtered at the sheep-shearing 1805.

In each year of this experiment, an attempt will be made to ascertain the quantity of food consumed by each sort, by putting them into moderate-sized divisions of dry bare pasture, weighing and cutting turnips for them, and twice or oftener in the course of the week, weighing back all that is not consumed. These sheep will be often weighed, and always when their food is changed.

The second lot, consisting of the remaining ten of each sort, will, upon their being divided, be put to hard keep, and will continue to be treated in that manner through the first winter and the following summer. The second winter they will have some hay given them, and in the spring be put to tolerable grafs. They will be exhibited at the sheep-shearings 1804 and 1805. Such as are at the last shearing fit for the butcher, will be slaughtered, and the remainder, as soon as they are in proper condition.

The different lots will, of course, be always kept in the same field.

Any person who may send sheep, and who may wish for any particular attention in the treatment of them, will if he gives in his request in writing, have it properly attended to, provided it should not appear to injure the general experiment, or give to his sheep any exclusive advantage.

Stamford Candlemas fair, was by no means so well attended with stock as has been usual. Both fat cattle and store beasts, fetched extravagant prices. The shew of horses too was small, and good ones sold high.

There was a good supply of horned cattle at Morpeth, on Wednesday, Feb. 9th. Some remained unfold. There were also great numbers of sheep, but the demand being great, they were soon bought up at an advanced price.

There was a capital exhibition of fine cattle, at Hereford Candlemas fair; but as few buyers attended, not many were disposed of, at prices rather on the advance. Few horses were brought for sale, and those of an ordinary kind; notwithstanding which, the prices asked were higher than at the neighbouring fairs. The sale of hops was dull, and the number of bags weighed unusually small. Five bags for which 17 guineas per cwt. had been refused by the planter, were disposed of for less than 5*l.* per cwt. The average price asked for prime samples, was 7*l.* 7*s.* Cheese averaged, one meal, from 60*s.* to 66*s.* and the two meal from 46*s.* to 56*s.* per cwt.

At Ledbury fair, there were not many cattle and horses exhibited for sale, the few however, which were sold, fetched their full value.

At Worcester new meeting, there was a large shew of fat beasts and sheep; but inferior in quality to what are generally produced there. The sale was dull, prices somewhat reduced, most of the sheep were turned out unfold. Store cattle considerably lower.

Commercial Affairs.

THE receipt of the customs at the port of Hull last year, amounted to near 400,000*l.* and such is the increase in the trade of that town, that seven acres of water in the Humber, were said to be lately covered with ships that could not get into docks.

The crops of spice on the island of Ceylon for the ensuing season, are stated in a letter received from Madras as follow:—600,000 pounds of cloves, the amount paid to the natives for the same, being 15,000*l*.—200,000 pounds of nutmegs, amount being 6,250*l*.—50,000 pounds of mace, 3,125*l*.—Total paid to the natives for those spices 24,375*l*. An estimate of the sale of the above in Europe, clear of all expence of freight and other charges, gives the following result:

600,000 pounds of cloves, yielding	-	-	240,000 <i>l</i> .
250,000 ditto nutmegs and mace, &c.	-	-	250,000 <i>l</i> .
Total.	-	-	£. 490,000

Manufactures and Useful Arts.

THE rapid rise in the manufacture of West of England broad cloths and kerseymeres, is stated, to be not in consequence of the unsettled state of the workmen, but from the enormous rise of Spanish wool, which has advanced to the price of 7*s*. per lb.

A gentleman of the name of Harriott, has invented a new engine for raising and lowering weights, and for other purposes, by the action of a column of water. The principle of this engine consists in combining the power of the syphon, with the direct pressure of a column or stream of water, so that each alternately acts on the upper and lower part of a piston, within a cylinder, as it were, reversing the syphon at each change; and the power is equal to a column of water of the same diameter as that of the cylinder, and equal in length, to the height of the head above the tail water. By this engine, it is said, that a boy can raise or lower goods of any weight without other exertion than that of merely turning a cock to the stop-mark in the index. It raises and lowers goods, with thrice the expedition usually produced by manual labour. The ingenious inventor indicates a variety of other purposes, to which this discovery may be applied.

TRUSTEES OFFICE EDINBURGH, JAN. 14, 1803.—The commissioners and trustees for fisheries, manufactures, and improvements in Scotland, have resolved to give the following premiums this year upon the articles undermentioned, to be lodged in the house of George Thompson, their principal clerk, York-place, Edinburgh, on or some days before the 10th February, 1803, immediately after which, the preferences will be determined by proper judges, to be appointed by the Trustees.

LINENS.

Article 1. For the best eight pieces of sheeting of a stout full threaded fabric and nearly square, each piece to be about 30 yards long, and 9-8 broad and of the following sets—two pieces of 900, two of 1000, two of 1100, and two of 1200, to be bleached, lapped, and finished for sale. £.16

2. For the best suit of damask linen, both with regard to the quality and elegance of pattern, the napkins to be wove in a reed of 1000 on an ell fours in the split, the cloth to have from 44 to 48 hundred on 98 inches; the figure to be new, and not to be repeated on the breadth of the table cloth. 30
3. For the best suit of Damask linen as above, the napkins to be wove in a reed of 900 on an ell, fours in the split, the cloth to have from 42 to 44 hundred on 98 inches, the figure to be new, and repeated both in length and breadth of the table cloth. 15
4. For the best two suits of diaper linens of the same pattern, both with regard to the quality and elegance of the pattern which must be new, to be wove in a loom of parts in imitation of damask, not exceeding

- the breadth of 20 designs in the body and border work together, the napkins to be wove in a reed of 1000, on ell threes in the split, the cloth not to exceed 37 hundred on ten quarters broad, 9
5. For the best two suits of diaper of the same pattern, both with regard to quality and pattern, the napkins to be wove in a reed of 900 on ell, threes in the split, the cloth from 32 to 34 hundred on ten quarters broad, and the patterns not exceeding three designs in the breadth 6
6. For the best twelve pieces 3-4ths huckaback or towelling, in imitation of that made at Darlington, each piece not under 26 yards long, six pieces about 1s. 8d. and the other six about 2s. per yard, to stand full 25 inches bleached. 16
7. For the best twelve pieces of 4-4ths linen, to be of stout and nearly square fabric, to be bleached, taken up soft, lapped and finished for sale, each piece to be about 25 yards long, and of the following sets, three pieces of a 900, three of 1000, three of 1100, and three of 1200, 16
8. For the best six pieces of cambric, each piece to be eight yards long, the yarn not less than six spindles in the English pound, and to be spun from Scottish flax. 16
9. For the best eight pieces of long lawn, each piece to be 32 yards long, and of the usual breadth, and the price to be 3s. to 4s. 6d. per yard, the premium to be 16

WOOLLENS.

10. For the best four pieces of Scotch carpeting, with regard to the fabric, the colors, and the elegance of the patterns, two pieces only to be of one pattern, and the patterns to be new, each piece not to be under fifty yards long 15
11. For the best three dozen of blankets in imitation of those made in Wiltshire, each blanket to be 10-4th wide by 11-4ths long, fully, and not exceeding 19s. per blanket in value 15
12. For the best ten pieces of forest or dressed woollen cloth, each piece not to be under twenty yards long and 7-8ths broad, and not exceeding 5s. 6d. per yard in value 32
- For the second best ten pieces ditto 11
13. For the best ten pieces of forest or dressed woollen cloth of the same length and breadth with the preceding article, and not exceeding 4s. 6d. per yard in value 18
- For the second best ten pieces ditto 9
14. For the best ten pieces of forest or dressed woollen cloth, each piece not under twenty yard long, and 3-4ths broad, and not exceeding 3s. 2d. in value 13
- For the second best ten pieces ditto 6
15. For the best ten pieces of dressed woollen cloth of the same length and breadth with the preceding article, and not exceeding 2s. 3d. per yard in value 10
- For the second best ten pieces ditto 5
16. For the six best pieces of duffle or coating 7-4ths wide, two pieces brown, two pieces blue, and two pieces light grey mixture, each piece to be twenty yards long, and not to exceed 7s. per yard in value 12
17. For the best six pieces 7-8ths wide baize, each piece to be twenty yards long, and not exceeding 2s. per yard in value 8
18. For the best six pieces nineteen inches wide, striped colored calimancoes, each pieces to be forty yards long, and not exceeding 34s. per piece in value 8
19. For the best six pieces striped swansdowns for waistcoats of different patterns, both with regard to quality and pattern, each piece to be ten yards long and 7-8ths broad, and not exceeding from 3s. to 5s. per yard, the yarn to be spun in Scotland 15

The remainder of these Premiums will be given in our next Number.

BANKRUPTCIES AND DIVIDENDS,

Announced between the 20th of January, 1802, and the 20th of February, 1803.

BANKRUPTCIES.

The Solicitor's Names are between Parentheses.

ALLEN, J. Bard's Buildings, Holborn. (Holloway, Chancery lane)
 —, Francis, Pall Mall, milliner. (Duan and Teafdale, Threadneedle street)
 Anson, W. Kingston, Hull, brandy merchant. (Partner with W. Sellers) Roffey, Kirby street
 Berger, T. Cockspur street, baker. (Wells, Wood street, Spitalfields)
 Barnett, S. Petersfield, and Godalming, victualler. (Allen, Clifford's Inn)
 Boorman, J. Headcorn, timber merchant. (Dyce, Sergeant's Inn)
 Buck, M. Clapham, Yorkshire, dealer. (Meddowcroft, Gray's Inn)
 Bruce, S. Odham, dealer. (Wills, Warfard court)
 Bright, T. Inzer Temple lane, stationer and bookbinder. (Bousfield, Bourvis street)
 Burdard, J. Jun. Bedford, corn factor. (Debary and Cope, Temple)
 Boyce, J. Wellclose Square, wine merchants (Haynes, Finchurch street)
 Clancy, W. Waterford, Ireland, merchant. (Addis, Gray's Inn)
 Collyer, W. Fulgonth, boot dealer. (Clenet, Staple Inn)
 C. late of Odham, dealer in corn, but now of Drury lane, victualler. (Thomas, Bearbinder lane)
 Corbet, J. Milk street, warehouseman. Firm, John Corbet and Co. (Hurd, Farnival's Inn)
 Danks, T. Oldbury, Salop, innholder. (Johnston, Inzer Temple)
 Devalve, J. Savage Gardens, and City Road, tobacco broker. (Fulton, Fore street)
 Dorrell, Mary, and W. Wells, shopkeepers. (Hecies, Fanciers lane, Ruckliffury)
 Dunster, T. G. Liverpool, merchant. (Windle, Bardett's Buildings)
 Duhamel, L. Liverpool, merchant and umbrella manufacturer. (Windle, Bardett's Buildings)
 Edmundson, T. Prefect street, merchant (Lockett, Basinghall street)
 Devise, R. Shrewsbury, porter merchant and innholder. (Griffiths, Lincoln's Inn)
 Eyres, S. Manchester, corn dealer. (Shephard and Addington, Gray's Inn)
 Emmorey, J. Sition, brash and speier maker. (James New Inn)
 Fawcett, T. Old Change, merchant. (Pering, Laurence Poultry Bill)
 Fearson, J. Peter, Upper Grafton street, late Commander of the Brigade East Indianman. (Ward, Denuetta, and Greaves, Henrietta street)
 Garwood, J. Royston, vicualler. (Higden and Sym, currier's Hall)
 Gibbs, W. Box, Wilks, miller. (Sands and Horton, Crane Court, Fleet street)
 Gabbins M. Toghil, farmer. (Bohon, Roccles)
 Gilling, A. Hackney Road, shoemaker. (Ruffen, Aldersgate street)
 Green, E. Charles street, Soho, marcer. (Turner, Fenchurch Lane Burg)
 Hinder, R. Salford, wine merchant. (Milne and Parry, Temple)
 Hull, W. Upper Boddington, and L. Hull, Banbury, cow dealers. (Meyrick and Bradrip, Red lion square)
 Mapwood, J. Worcester, glove maker. (Wills, Worcester)
 Hughes, M. Mooring lane, Hackney, milkman. (Tibbert, Devon street, Queen square)
 Morrocks, R. Rippudale, bleacher, &c. (Foulkes, Bury place, Bloombury)
 Holbrow, D. T. and J. Haynes, and R. Nenderfont, Old Lawnditch, manufacturers of chymical preparations. (Gabbell, Lincoln's Inn)
 Hook, J. Bernadoffey, leather dresser. (Carter, Staple's Inn)
 Jones, J. Penmafon drover. (Wycke, Bernard street, Ruidal square)
 Jackson, F. Basinghall street, factor. (Revers, Basing lane)
 Jeffery, J. Bristol, cutter. (Pearsons, Pump court, Temple)
 Jackson, J. Oxford street, linen draper. (Richardson, New Inn)
 Joyce, W. and W. Bachelor, Bristol silvermiths. (Bigg, Harton Garden)
 Janson, John, Blackburn, cotton manufacturer. (Shews, Tudor street)
 Le Souef, F. Great Winchester street, merchant. (Jackson, Walbrook)
 Miller, G. Bodmin, vinner. (Shephard and Addington, Gray's Inn)
 Midkiff, J. Liverpool, merchant. (Wisk and Forreth, Liverpool)
 May, Strubblinlii Noorwood, Great St. Helier, merchant. (Gregory, Angel court)
 Michell, W. Wanchott, clothier. (Blakes, Cook's court, Carey street)
 Preghare, E. Spalding, merchant. (Druce, Billiter square)
 Fricatt, T. Warrick court, Holborn, scrivener. (Carter, Staple's Inn)
 Porter, R. C. Kingston, Hull, ironmaker. (Gale, Hull)
 Pennington, L. Warrington, corn dealer. (Leather, Warrington)
 Raffman, J. machinemaker. (Roffe, Key street, near the London)

Parker, J. Birmingham, plater. (Willington and Small, Temple)
 Quayle, M. Liverpool, merchant. (Norris, Liverpool)
 Rogers, W. Depley Mill, miller and miller. (Raggett, Odham)
 Richardson, T. and T. Worthington, Manchester, merchants. (Milne and Parry, Temple)
 —, John, Manchester, cotton spinner. (Hurd, Farnival's Inn)
 Short, J. Alfred place, cordwainer. (Shepard, Dean street, Canterbury square)
 Sadler, E. Wellbournwich, grocer. (Wortham and Stevenson, Cattle street, Holborn)
 Simpson, E. G. Roll's buildings, taylor. (Holloway, Chancery lane)
 Smith, W. Monkwearmouth, ship builder. (Archefon, Key place)
 Spence, T. Blackburn, shopkeeper. (Dewhurst, Blackburn)
 —, W. Upper Catton, corn factor. (Robinson, Elix street)
 Staplet, L. Wapping, Stafford hire, warehouseman. (Maddock and Stevenson, Lincoln's Inn)
 Teafdale, J. Jun. Bolton, merchant. (Druce, Billiter square)
 Toy, E. Plymouth dock, draper. (Phillips, at Mr. Mangrove, Warwick square)
 Taylor, J. and M. Cowley, Galinborough, merchants. (M'Sougall and Hunter, Lincoln's Inn)
 Thomas, J. Chester, maltster. (Besley, Chester)
 Tompion, W. Jun. Wolverhampton, greener. (Johnston, Farnival's Inn)
 Wrighton, D. Little Alne, Flax dresser. (Egerton, Gray's Inn)
 Warren, J. Sandy's street, weaver. Websters, Querc street, Chesapeake)
 Wood, W. Liverpool, flour dealer. (Freckleton, Liverpool)
 Wright, T. Leeds, merchant. (Surviving partner of M. Cawood). (Lambert, Harton Garden)
 Wickens, L. St. Clement's Church yard, haberdasher. (Dale, Harton Garden)
 Wagner, J. late of Wallington, now of Lower Tooling, calico printer. (Langham, Bardett's Buildings)
 Williams, J. G. late of Winchester street, now of War street, London road, merchant. (Forbes, Ely place)
 Wright, J. Manchester, cotton spinner. (Hurt, Farnival's Inn)

DIVIDENDS ANNOUNCED.

Aphade, S. Blakom street, Spitalfields, cooper, Feb. 15
 Atkinson, J. Cockermonth, tanner, March 8
 Allen, J. British architect, and builder, March 15
 Baile, W. Plymouth dock, linen draper, Feb. 8
 Beauchamp, R. and E. Lloyd, Kirby street, lacemans, Feb. 15
 Berington, S. Gracechurch street, merchant, March 5. Final
 Bennell, J. Newcable, hauer, Feb. 13
 Bathagen, M. and J. Berman, Watling street, merchants, Feb. 26
 Bentley, C. and John Dale, Norwich, warehousemen, March 14
 Barrell, C. late of New York, now of James street, Bedford row, merchant, March 12
 Barber, J. Gerrard street, woollen draper, March 12
 Crubly, J. Oxford street, mercer, Feb. 22
 Coker, E. Woolen under Edge, clothier, &c. March 16
 Clarke, C. Shrewsbury, woollen draper, March 1
 Crydon, E. stourbridge, baker, &c. Feb. 28
 Crowe, E. E. Tinton Lodge, baker, March 1
 Colby, E. Brightelmstone, shopkeeper March 2
 Clarke, R. and G. Grub street, north dealers, March 12
 Crickton, P. Woolwich, victualler, March 8
 Clippin, J. Tower street, stationer, March 10
 Cawthorn, G. Strand, bookbinder, March 1
 Dearlove, J. Manserrow Woolworth, and Lambeth, corn dealer, Feb. 15
 Duff, J. Finsbury square, merchant, April 26
 Duncnelly, P. Tavock street, Covent Garden, March 2
 Dyson, D. Tottenham, grazier, Feb. 13
 Dikewater, F. Manchester, and T. Dakeyne, Dalrydale, corn factors, Feb. 24. Joint and separate Estates of Dikewater.
 Dunclett, J. Leicester, grocer, Feb. 26
 Dickson, R. Cullum street, merchant, March 10
 Da Coter, J. M. Mansell street, merchant, March 10
 Eyre, B. M. Ainslie, and W. Waite, Tokensworth yard, merchants, March 5
 Every, S. Liverpool, ship chandler, March 4
 Eberington, D. York, merchant and taylor, March 11
 Elerton, S. and J. Peper, Godalming, linen drapers, April 2
 Elderton, John, Great Carter lane, oil and colour man, March 12
 Foggan, R. Salford, cotton manufacturer, Feb. 26
 Forbes, J. and R. Tomkins, Lad lane, warehouseman, April 3
 Fitz, J. Weston street, Southwark, cooper, March 2
 Fletcher, J. late of Clapham, partner with J. Fletcher, of Lisbon, merchant, March 10
 Gibbby, R. Jun. Kingston, Hull, grocer, March 2. Final
 Grant, J. Laurence Poultry lane, merchant, Feb. 13
 Gever, W. Mount Row, Frintonville, cable keeper, Feb. 23
 Goldsmith, R. New & Old street, embroiderer, March 1
 Green, J. Smith, & Co. matter, Feb. 14
 Godwin, J. and T. Mallam, Fleet street, near the London, March 1

Gardner, F. Great St. Helen's underwriter, Feb. 19
 Heath, F. Bath, ironmonger, Feb. 18
 Hird, W. jun. late chief mate of the Earl of Wycomb Indianan, March 2
 Harnill, H. Cateston street, linen draper, March 22
 Harrifon, T. jun. Sandford hall, timber merchant, Feb. 25
 Horren, J. Gockill Shadwell, dealer, Feb. 26
 Harper, R. Walters Sutton, Kildwick, Feb. 28
 Whitell, Henry, Reading, coach maker, Feb. 26
 Jackson, R. and J. Hankin, Oxford street, rectifiers, &c., Feb. 26
 Johnson, N. Enfield, shop keeper, Feb. 28
 Jeffs, W. Strand, haberdasher, March 1
 Johnson, T. Norton Falgate, chymist, &c. April 25
 Jamifon, G. Porsea, watch maker, March 5
 Johnson, T. Friday street, warehouseman, (firm, Smith, Johnson, and Co.) March 1
 Keighly, J. L. F. Ferguson, and W. Armstrong, London, merchants, Feb. 15
 Lupton, J. Middleham, dealer, Feb. 15
 Lane, B. Baker street, agent, April 29
 Lafcelles, R. South Audley street, tailor, March 19
 Lambert, T. West Gintind, shop keeper, March 8
 Lindroth, P. Kingston, merchant, March 9
 Markland, Thos. Bolton le Moors, cotton manufacturer, Feb. 16
 Mofely, J. and J. Rofe, Birmingham, factors, Feb. 15
 Maltby, T. and G. Size lane, merchant, Feb. 8
 Moore, D. Middlewich, linen draper, March 2
 Minifie, C. Exeter, tallow chandler, Feb. 23
 Maitland, D. New Bridge street, merchant, Feb. 4
 Martin, Alex. and Thos. Pantion street, cabinet makers, March 15
 Nelbitt, J. E. Stewart, and J. Nelbitt, jun. Aldermanbury, merchants, Feb. 27, and joint estate, Feb. 23
 Nobes, J. and W. Southra Common, green grocer, Feb. 21
 Niblock, J. and E. Burgess, Bristol, linen drapers, March 12
 O'Ryan, T. and J. Mandville, Bristol, merchants, Feb. 23
 Pourtales, A. P. and A. G. Broad street Buildings, merchants, Feb. 12
 Parfice, J. Holt, bookbinder, Feb. 18
 Porter John, alias Thomas, Deal, grocer, Feb. 26
 Quayby, J. Winchester, mercer, &c. Feb. 16
 Ring, H. Tunbridge, carpenter, April 28
 Rudderforth, T. St. Paul's Church Yard, stay maker, April 25
 Richardson, C. Horncastle, maltster, March 15
 Ralfe, T. and J. Gauntlet, Leadenhall street, merchants, March 8
 Richardson, F. Horncastle, linen draper, March 21
 Smith, W. and J. Atkinson, jun. merchants, April 26, joint estate, separate estate of Smith, April 27, and separate estate of Atkinson, April 29
 Slater, R. Ashburil Lodge, cyder merchant, March 2
 Swainfon, R. and J. Gardner, Liverpool, grocer, Feb. 24
 Scott, A. Worthington, mercer, Feb. 22
 Smith, J. and S. King, Newgate street, woollen drapers, March 1
 Stenfon, S. Kenington, cheese monger, March 1
 Scott, J. and G. South street, Finsbury square, merchants, March 19
 Stainbank, C. Old Bond street, print seller, March 5
 Seilman, W. Great Russell street, Covent Garden, ironmonger, March 8
 Smith, G. Lovell's court, and Pudding lane, wine merchant, March 19
 Smulley, W. Blackbourn, cotton manufacturer, March 7
 Smith, G. and J. Curro, Cheptow, bankers, April 15
 Stocken, O. F. jun. Parlon's green, coal merchant, March 19
 Stephens, R. Manchester, dealer in wools, &c. March 15
 Tremlett, W. Totnes, shopkeeper, Feb. 14
 Timmings, J. Stewart street, Spitalfields, March 12
 Taylor, W. Eltham, dealer, Feb. 23
 Turnbull, J. J. Forbes, R. Allen Crawford, and D. Shear, Broad street, merchants, separate estate of Turnbull, Feb. 25, and of Forbes, March 12
 Towle, T. and J. Jackson, Newgate street, warehousemen, &c. Feb. 26
 Taylor, J. Manchester, March 2
 Turton, B. Coleman street, druggist, April 25
 Twiss, R. Upper Titchfield street, paper manufacturer, March 12
 Tuck, W. Ilington, cow keeper, March 8
 Wood, J. and J. Wednebury, gun lock makers, Feb. 15
 Williams, G. Saffron hill, shoemaker, Feb. 15
 Whitefide, R. M. Cheam street, Herts, grocer, March 1
 Wright, G. Worcester, dealer, Feb. 21
 Wallace, J. Upper Mary-le-bone street, carpenter, &c. Feb. 25
 Wait, W. jun. Bristol, merchant, Feb. 28
 Wilcocks R. Red lion street, Clerkenwell, March 5
 Wolfenhome, Dean, jun. Waltham cross, inn holder, March 12
 Weller, W. Waterly, Deptford, miller, March 11
 Yare, J. Oxford street, linen draper, Feb. 26
 Zurnhorst, H. Basinghall street, merchant, some time in business with J. and E. Reilly, and J. Morris, final of Zurnhorst and Morris, March 2.

Prices of Raw Hides, Hay and Straw, &c. for February, 1803.

Raw Hides.	1st Week		2d Week		3d Week		4th Week	
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Best Heifers & Steers, pr ft.	3 8 to 4 0		3 8 to 4 0		3 8 to 4 0		3 8 to 4 0	
Middling	3 2 to 3 4		3 2 to 3 4		3 2 to 3 4		3 2 to 3 4	
Ordinary	2 10 to 3 0		2 10 to 3 0		0 0 to 3 0		0 0 to 3 0	
Market Calf	9 6		9 0		9 0		9 0	
Eng. Horse	14s to 16s		14s to 16s		14s to 17s		14s to 17s	
Sheep Skins	4 0 to 9 0		4 6 to 9 6		4 0 to 9 0		4 0 to 10 0	
Lamb Skins	0 0 to 0 0		0 0 to 0 0		0 0 to 0 0		0 0 to 0 0	
Prices of Hay and Straw.								
St. James's—Hay	5 12 0		5 7 6		5 5 0		5 15 6	
Straw	2 3 6		1 19 9		2 6		2 3 6	
Whitech.—Hay	5 18 6		6 6		5 15 6		0 0	
Clover	7 1 0		7 0		7 0		0 0	
Straw	1 19 0		1 17 0		1 19 0		0 0	
Uxbridge.								
New Wheat per load	141 to 161		1 to 1		1 to 1		1 to 1	
Barley	24s to 27s		3 to 5		3 to 5		3 to 5	
Oats	23s to 27s		3 to 5		3 to 5		3 to 5	
Beans	32s to 38s		3 to 5		3 to 5		3 to 5	
New ditto	5 to 5		3 to 5		3 to 5		3 to 5	
Peas	40s to 42s		3 to 5		3 to 5		3 to 5	
Newbury.								
Wheat	3 to 5		42s to 64s		42s to 63s		45s to 64s	
New ditto	3 to 5		3 to 5		3 to 5		3 to 5	
Barley	3 to 5		3 to 5		18s to 24s		20s to 24s	
Beans	3 to 5		3 to 5		3 to 5		3 to 5	
Oats	3 to 5		3 to 5		17s to 20s		18s to 21s	
Peas	3 to 5		3 to 5		3 to 5		3 to 5	

Prices of Hops, Meat, Seeds, Leather, Tallow, &c. for Feb.

1803.

Price of Hops.		First Week		2d Week		3d Week		4th Week	
Bags.		s.	s.	s.	s.	s.	s.	s.	s.
Kent	—	200 to 224		150 to 168		200 to 210		200 to 224	
Suffex	—	200 to 215		145 to 160		200 to 210		200 to 220	
Essex	—	200 to 210		140 to 160		200 to 210		200 to 220	
Pockets.									
Kent (new)	—	205 to 250		200 to 250		200 to 245		200 to 240	
Suffex	—	200 to 231		200 to 238		200 to 231		200 to 231	
Farnham	—	280 to 320		240 to 294		280 to 320		220 to 320	
Seeds.									
Canary Seed (per cwt.)	—	80 to 85		80 to 85		80 to 85		80 to 85	
Red Clover ditto	—	80 to 110		80 to 110		75 to 100		80 to 112	
White Clover, ditto	—	80 to 140		80 to 140		80 to 147		80 to 147	
Trefoil, ditto	—	30 to 76		30 to 76		30 to 76		30 to 76	
Carraway ditto	—	36 to 42		36 to 42		36 to 42		36 to 42	
Coriander ditto	—	28 to 30		28 to 30		28 to 30		28 to 30	
Turnip, (per bushel)	—	22 to 26		22 to 26		— to —		18 to 25	
Rye Grass, (per quarter)	—	30 to 50		30 to 50		30 to 50		30 to 56	
Cinque Foil, ditto	—	— to —		— to —		— to —		— to —	
Rape Seed, (per last)	—	321 to 351		321 to 351		321 to 351		321 to 351	
Meat at Smithfield.		s.d.	s.d.	s.d.	s.d.	s.d.	s.d.	s.d.	s.d.
To fink the offal, p. ft. 8lb.									
Beef	—	4 0 to 5 6		4 8 to 6 3		4 6 to 6 0		4 6 to 6 0	
Mutton	—	4 8 to 6 0		5 0 to 6 4		5 4 to 6 4		5 4 to 6 4	
Veal	—	6 0 to 8 0		6 0 to 8 0		6 0 to 8 4		6 0 to 8 4	
Pork	—	4 8 to 6 6		5 0 to 6 0		4 8 to 6 0		4 8 to 6 0	
Lamb	—	0 0 to 0 0		0 0 to 0 0		0 0 to 0 0		0 0 to 0 0	
Head of Cattle—Beasts about		7,00		2,000		2,000		2,000	
Sheep and Lambs		8,500		7,500		8,500		7,500	
Price of Leather.		d.	d.	d.	d.	d.	d.	d.	d.
Butts, 50lb. to 56lb. each	—	19 to 20		19½ to 21		19½ to 21		19½ to 20	
Ditto, 60lb. to 66lb. each	—	22½ to 23		22 to 23		22 to 23		22½ to 23	
Merchants Backs	—	19 to 20		— to —		— to —		19 to 20	
Dressing Hides	—	18 to 19		18 to 19		18 to 19		19 to 20	
Fine Coach Hides	—	19 to 21		20 to 21		20 to 21		20 to 22	
Crop Hides for cutting	—	20 to 22		20 to 22		20 to 22		20½ to 22	
Flat Ordinary	—	18 to 19		18 to 19		18 to 19		18½ to 20	
Calf Skins, 40 to 50lb. p. doz.	—	26 to 32		26 to 32		26 to 32		26 to 32	
Ditto, 50lb. to 70lb. do.	—	27 to 32		26 to 32		26 to 32		27 to 32	
Ditto, 70lb. to 80lb. do.	—	26 to 28		26 to 28		26 to 28		26 to 28	
S.m. Seals (Greenland)	—	38 to 40		38 to 40		38 to 40		40 to 42	
Large do.	—	51 to 71		51 to 71		51 to 71		51 to 71	
Tanned Horse Hides	—	18s to 32s		18s to 32s		18s to 32s		18s to 32s	
Goat Skins per doz.	—	— to —		— to —		— to —		— to —	
Price of Tallow.		s.	d.	s.	d.	s.	d.	s.	d.
St. James's Market	—	4 7½		4 8		4 7		4 4½	
Clare Market	—	4 7		4 8		4 7½		4 0	
Whitechapel Market	—	4 6½		4 6½		4 5		4 4½	
Per stone of 8lb. Average	—	4 7		4 7½		4 6½		4 4½	
Town Tallow	—	78 0		78 0		77 0		75 6	
Russia ditto (Candles)	—	76 0		76 0		76 0		75 0	
Russia ditto (Soap)	—	70 0		69 0		69 0		69 0	
Melting Stuff	—	60 0		60 0		60 0		61 0	
Ditto rough	—	44 0		42 0		42 0		42 0	
Graves	—	16 0		16 0		16 0		16 0	
Good Dregs	—	10 0		10 0		10 0		10 0	
Yellow Soap	—	78 0		78 0		78 0		78 0	
Mottled ditto	—	86 0		86 0		86 0		86 0	
Curd ditto	—	90 0		90 0		90 0		90 0	
Candles, per dozen,	—	12 0		12 0		12 0		12 0	
Moulds	—	13 0		13 0		13 0		13 0	

LONDON PRICES OF GRAIN for *February, 1863.*MARK-LANE, *Monday, January 31.**Price of Grain, on board Ship, as under*

Monday, Jan. 31.—From a prospect of the frost not being of long continuance, we had this day a very slack market, and very little done. Hence the price of most Grain may be quoted at near last Monday's prices, with the exception, however, of Oats, and both sorts of Peas and Beans, which are brisker.

Wheat	46s to 61s	Malt	41s to 46s 6d	Grey Peas	33s to 37s 6d
Fine	62s to 63s 0d	Oats	18s to 23s	Small Beans	36s to 39s 0d
Rye	35s to 38s	Polands	24s to 25s 6d	Ticks,	32s to 35s 0d
Barley	24s to 28s 6d	White Peas	33s to 40s		

Monday, Feb. 7.—We have had a very considerable arrival of Wheat since the thaw, and that article at market this day is 2s. per quarter lower than last Monday.

Barley is likewise in great plenty, and Malt about 1s. per quarter cheaper.

Oats also came to hand in abundance, and are declining in price.

Peas and Beans of both sorts are not so plentiful, and something dearer.

Wheat	44s to 56s	Barley	23s to 27s 0d	White Peas	33s to 40s
Fine	58s to 59s 0d	Malt	40s to 45s 0d	Grey Peas	32s to 35s 0d
Rye	35s to 38s 0d	Oats	15s to 21s	Sm. Beans,	34s to 38s 0d
		Polands ditto	22s to 23s 6d	Ticks,	30s to 34s 0d

Monday, Sept. 14.—Having no arrivals of consequence since the frost, the prices of all Grain remain nearly as last Monday's quotation, with the exception, however, that Rye is cheaper, and Barley a declining article.

Malt remains steady.

Peas and Beans of both sorts are in plenty.

Some cargo's of Oats being up, they are rather dull sale.

Flour still keeps its price,

Wheat	44s to 59s	Malt	41s to 46s 0d	White Peas	33s to 44s 0d
Fine	60s to 61s	Oats	14s to 21s	Grey Peas	30s to 34s 6d
Rye	33s to 36s	Polands	22s to 23s 0d	Sm. Beans,	31s to 36s
Barley	23s to 27s 0d			Ticks	28s to 32s 6d

Monday, Feb. 21.—Our market for Wheat was not so large as expected.

Best Essex and Kent runs, maintained last week's prices, and a few superfine samples, etc., a trifle more than the general currency.

We have moderate supplies of Barley and Malt, and which are cheaper.

Oats are rather a better supply, but we note no variation in the price.

Peas of both sorts are dearer, but Beans cheaper.

Flour nearly as last week.

Wheat	44s to 59s	Malt	40s to 44s 6d	Grey Peas	30s to 34s 6d
Fine	60s to 61s 0d	Oats	14s to 21s	Small Beans	28s to 34s 6d
Rye	32s to 3s 0d	Polands di to	22s to 23s 0d	Ticks,	27s to 31s 6d
Barley	23s to 26s 0d	White Peas	33s to 41s 0d		

AVERAGE PRICES OF CORN, by the quarter of eight Winchester bushels; and of OATMEAL, per boll, of 140 pounds Avoirdupois.
From the Returns received in the Week, ended FEBRUARY 19, 1862.

INLAND COUNTIES.

COUNTIES.	Wheat.		Rye.		Barley.		Oats.		Beans.		Peas.		Green peas.	
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
Middlesex	61	6	38	0	26	5	13	11	35	0	39	8		
Sumey	59	8	36	0	26	8	2	6	34	0	37	9		
Hertford	53	6	35	6	26	0	21	0	36	0	40	5		
Bedford	51	0	29	0	24	2	18	5	27	3	39	3		
Huntingdon	51	2			23	4	16	10	26	8	36	9		
Northampton	53	2	29	6	21	6	17	8	26	6	30	6		
Rutland	56	0			23	6	18	0	32	0			58	0
Leicester	56	11			23	10	17	9	29	3	32	0	31	9
Nottingham	62	2	37	6	27	2	19	4	34	0	36	6		
Derby	62	0			27	9	19	8	37	8	33	0	27	5
Stafford	60	7			26	7	19	9	36	6			28	8
Salop	55	8	32	2	25	6	20	6	37	4	31	4	63	7
Hereford	52	5	31	6	24	8	20	11	33	11	33	3	62	8
Worcester	54	1	31	2	24	9	22	2	33	7	40	10		
Warwick	56	11			26	5	19	8	37	5	41	8	31	7
Wilts	55	0			22	2	19	4	38	0	34	0		
Berks	59	3			23	7	21	8	34	3	36	8		
Oxford	56	6			21	10	20	0	30	5	33	11		
Bucks	55	0			23	6	20	10	32	11	40	0		
Brecon	56	0	32	0	25	4	16	0			28	0	34	8
Montgomery	54	5			22	5	17	7			33	8	38	2
Radnor	51	9			23	11	20	2			30	1	60	8

Maritime Counties.

Essex	56	10	34	6	24	7	23	0	30	4	32	6		
Kent	55	10			26	0	22	2	31	3	36	9		
Suffex	53	6			25	2	20	10			42	2		
Suffolk	54	10	30	0	23	1	19	9	27	1	32	7	48	6
Cambridge	50	2	24	10	22	11	14	11	26	0				
Norfolk	53	7	36	0	22	0	19	1	26	11	32	9		
Lincoln	52	8	34	11	24	1	15	11	29	11	36	0		
York	53	5	38	5	24	4	16	9	31	4	56	0	38	2
Durham	56	7			29	0	18	11	36	8				
Northumberland	50	9	36	5	21	6	16	11			35	0	14	6
Cumberland	63	0	43	4	27	1	20	4					17	6
Westmorland	69	0	48	10	27	8	21	0					17	6
Lancaster	63	0			31	11	20	10	38	3			17	8
Chester	57	8			26	6	19	2					17	6
Flint									41	4				
Denbigh	61	5			29	10	18	4			38	5	35	7
Anglesea					24	0	14	0	41	8				
Carnarvon	62	0			24	0	14	0					31	9
Merioneth	66	8			30	8	19	4			36	0	34	13
Cardigan	54	5			19	10	11	0						
Pembroke	50	9			24	1	13	0						
Carmarthen	57	4			21	4	13	11						
Glamorgan	54	8			22	1	16							
Gloucester	55	1			23	11	19	7	35	5	37	4		
Somerset	56	3			23	2	18	0						
Monmouth	55	0			24	4	17	9						
Devon	59	2			22	2	16	0			47	10	34	7
Cornwall	57	11			21	4	14	7						
Dorset	56	2			22	6	20	8						
ants	55	4			23	10	21	5	31	10				

PRICES OF COALS AT THE COAL EXCHANGE, LONDON, For FEBRUARY, 18c3.

Names of Coals.	Mon. 31. s. d.	Wed. 2d. s. d.	Frid. 4th s. d.	Mon. 7th s. d.	Wed. 9th s. d.	Frid. 11th s. d.	Mon. 14th s. d.	Wed. 16th s. d.	Frid. 18th s. d.	Mon. 21st s. d.	Wed. 23d s. d.	Frid. 25th s. d.
Adair's Main												
Allen's												
Allerton												
Baker's Main												
Bedford Main												
Benton			41 9	42						37 6	38 6	
Beamish So. Moor												
Benwell												
Biddick Main												
Bigg's Main	43 9	43		42 6				39	38 6	39		
Blackfell					42 6							
Bladon Main												
Blyth	42 6	41								39	40	
Boundry												
Bourn Moor		40 6				40	38 9	38	36 3			37 9
Bowes Main												
Brandling				41 6		40 3				37		
Byker		42 3										
Byker, High & Low												
Cowpen	43	43					41			39		
Dewbury Main												
Eden Main	39	39 6					38 6					37 9
Flockton												
Greenwich Moor									40			
Haraton												
Hartley										39		
Heaton Main	43 9	43	43					39	38 3	38 9	40	
Hebburn Main		43 9			42	43		39 6	38 6		40	39 3
Holywell	40		43									
Hutton Main												
Kenton Main	43	43							38			
Lambton's Low dit.												
Mailey Hill												
Methley Park												
Montague Main								37				
Mount Moor		40 6										
Newbottle	38	39 6				40	37 9					
Old Ducks												
Pitt's Tansfield M.			43									
Primrose	38											
Rectory	37	38 9							35			
Ruffel's Main	39	39 6							36 3			
Simpfon's Pontop	40				42					40		
Silver Tops												
Sheriff's Hill												
South Moor	40									37		
Stanley Main								31	30 6			
St. David												
Team		40										
Toft Moor												
Tyne Main												
Usworth Main												
Walbottle Moor	43 6	43 6										
Walker	44	44			42	42 9		39	38	38 6	40	
Wall's End								40	39 9	39 6	41 6	40 6
Wharton												
Willington				42 6	41 6				38		40	
Windfor's Pontop												
Windfor's Tandf. M.												
Wylam Moor					40 6							
Wentworth												
Whitefield				39 6								
Wooler Main												

A Table of the Prices of STOCKS in February, 1803.

Days	Bank Stock	3perc. Red.	3perc. Consols.	4perc. Navy.	5perc. Loyalty	Long Ann.	Short Ann.	Imp. 3 per Ct.	Imp. Ann.	India Stock.	Omanum.	Exchq. Bills.	Consols. for Act.	Tickers.
Jan. 28	187	71 1/4	70 1/4	87 1/4	100 1/4	20 9-16	4 9-16	70	11 11-16	210 1/4	4 1/4		71 1/4	17 16
29	187	71 1/4	70 1/4	87 1/4	100 1/4	20 9-16	4 9-16	69 1/4	11 11-16	209 1/4	4 1/4		71 1/4	17 16
30	187	71 1/4	70 1/4	87 1/4	100 1/4	20 7-16		69 1/4	11 9-16	208 1/4	5 1/4		70 1/4	17 16
1	187	71 1/4	70 1/4	87 1/4	100 1/4	20 7-16		69 1/4	11 9-16		4 1/4		70 1/4	17 16
2	187 1/4	71 1/4	70 1/4	87 1/4	100 1/4	20 7-16	4 9-16	69 1/4	11 9-16		4 1/4		70 1/4	17 16
3	187 1/4	71 1/4	70 1/4	87 1/4	100 1/4	20 7-16		69 1/4	11 9-16		4 1/4		70 1/4	17 16
4	187 1/4	71 1/4	70 1/4	87 1/4	100 1/4	20 7-16		69 1/4	11 9-16		4 1/4		70 1/4	17 16
5	187 1/4	71 1/4	70 1/4	87 1/4	100 1/4	20 7-16		69 1/4	11 9-16		4 1/4		70 1/4	17 16
6	187 1/4	71 1/4	70 1/4	87 1/4	100 1/4	20 7-16		69 1/4	11 9-16		4 1/4		70 1/4	17 16
7	187 1/4	71 1/4	70 1/4	87 1/4	100 1/4	20 7-16		69 1/4	11 9-16		4 1/4		70 1/4	17 16
8	187 1/4	71 1/4	70 1/4	87 1/4	100 1/4	20 7-16		69 1/4	11 9-16		4 1/4		70 1/4	17 16
9	188	71 1/4	70 1/4	87 1/4	100 1/4	20 7-16		69 1/4	11 9-16		4 1/4		70 1/4	17 16
10	188	71 1/4	70 1/4	87 1/4	100 1/4	20 7-16		69 1/4	11 9-16		4 1/4		70 1/4	17 16
11	187 1/4	71 1/4	70 1/4	87 1/4	100 1/4	20 7-16		69 1/4	11 9-16		4 1/4		70 1/4	17 16
12	187 1/4	71 1/4	70 1/4	87 1/4	100 1/4	20 7-16		69 1/4	11 9-16		4 1/4		70 1/4	17 16
13	187 1/4	71 1/4	70 1/4	87 1/4	100 1/4	20 7-16		69 1/4	11 9-16		4 1/4		70 1/4	17 16
14	187 1/4	71 1/4	70 1/4	87 1/4	100 1/4	20 7-16		69 1/4	11 9-16		4 1/4		70 1/4	17 16
15	188 1/4	71 1/4	70 1/4	87 1/4	100 1/4	20 7-16		69 1/4	11 9-16		4 1/4		70 1/4	17 16
16	189 1/4	71 1/4	70 1/4	87 1/4	100 1/4	20 7-16		69 1/4	11 9-16		4 1/4		70 1/4	17 16
17	190	71 1/4	70 1/4	87 1/4	100 1/4	20 7-16		69 1/4	11 9-16		4 1/4		70 1/4	17 16
18	190	71 1/4	70 1/4	87 1/4	100 1/4	20 7-16		69 1/4	11 9-16		4 1/4		70 1/4	17 16
19	190	71 1/4	70 1/4	87 1/4	100 1/4	20 7-16		69 1/4	11 9-16		4 1/4		70 1/4	17 16
20	190	71 1/4	70 1/4	87 1/4	100 1/4	20 7-16		69 1/4	11 9-16		4 1/4		70 1/4	17 16
21	188 1/4	71 1/4	70 1/4	87 1/4	100 1/4	20 7-16		69 1/4	11 9-16		4 1/4		70 1/4	17 16
22	188 1/4	71 1/4	70 1/4	87 1/4	100 1/4	20 7-16		69 1/4	11 9-16		4 1/4		70 1/4	17 16
23	190	71 1/4	70 1/4	87 1/4	100 1/4	20 7-16		69 1/4	11 9-16		4 1/4		70 1/4	17 16
24	190	71 1/4	70 1/4	87 1/4	100 1/4	20 7-16		69 1/4	11 9-16		4 1/4		70 1/4	17 16
25	190	71 1/4	70 1/4	87 1/4	100 1/4	20 7-16		69 1/4	11 9-16		4 1/4		70 1/4	17 16
26	190	71 1/4	70 1/4	87 1/4	100 1/4	20 7-16		69 1/4	11 9-16		4 1/4		70 1/4	17 16

T. BISH, STOCK-BROKER, Old State-Lottery Office, No. 4, Cornhill, London.

TO OUR READERS AND CORRESPONDENTS.

WE have availed ourselves of the permission of the proprietor of Dr. Darwin's Valuable Work, the Phytologia, to copy their Engraving of his Drill Plough, and Mr. Swanick's Seed Box. Our numerous correspondents may possibly improve upon them—at least they have one thing to recommend them—the adoption of the universal joint, which, in our opinion, is a great improvement.

Agricola Norfolkensis, is deserving of our best thanks, and we think that our agricultural readers will ever find both amusement and improvement in the perusal of his Essays.

Mr. Weston's very valuable communications are inserted, and we have no doubt but they will prove as acceptable to our readers as to us.

The Berkshire Farmer's account of Boardley's Instrument for sowing small seeds broadcast, will, we have no doubt, be used by every adherent of the old system.

The Buckinghamshire Farmer's Letter was received, but we conceived the expressions were rather too harsh, and therefore did not insert it—should he, however, think fit again, to write any thing on the same subject, which would not personally offend—it would immediately occupy a place in our Magazine.

The favors of N. S. and P. are received, but came too late for publication.

Our Old Friend Castor has not lately addressed us, we trust we have not offended him, and therefore hope for a continuation of his favors.

**** The sticher of this Magazine, by drying the sheets suffered some hundred of four pages, of the last Number to be burnt, consequently some of our Readers have their Numbers imperfect; we therefore present the deficiency in this Number.*

Ch. Darwin's

Copied by Pe

Fig. 7.



Fig. 8.



Fig. 9.

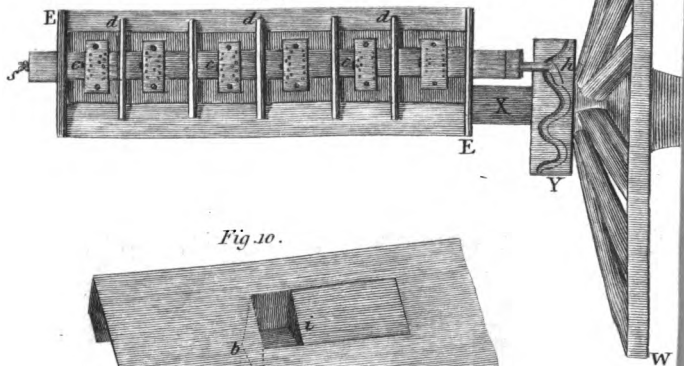
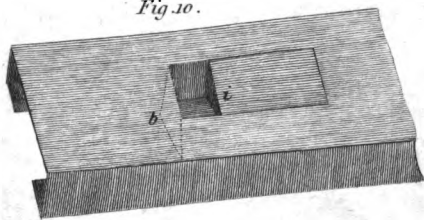
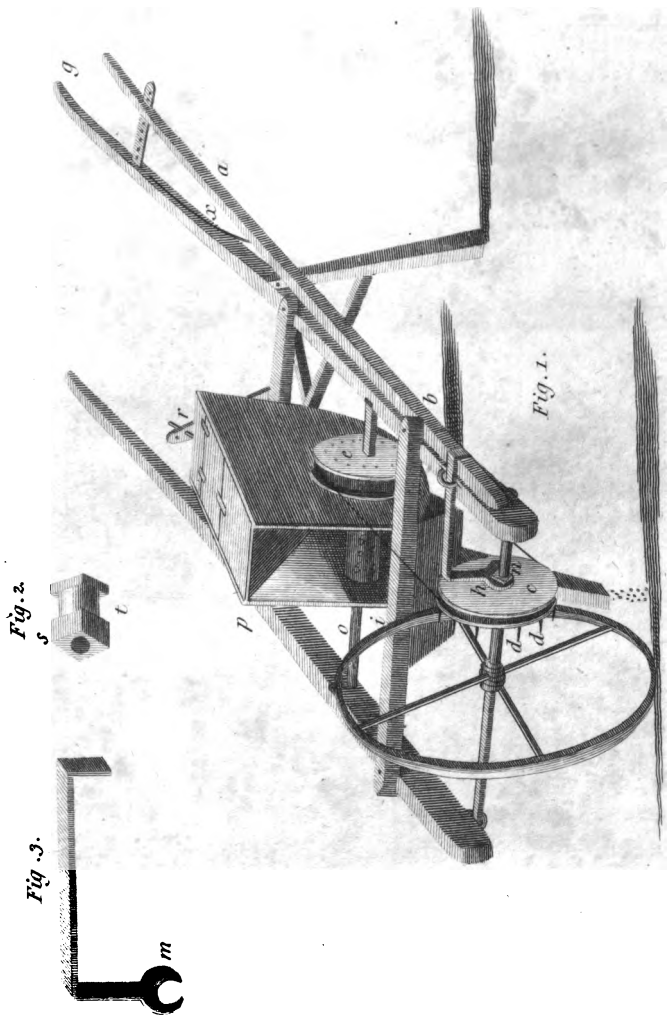


Fig. 10.



(2) Norfolk's Hand Drill.



[Vol. VIII.]

2 A

wait the arrival of a lighter wheel from the foundry, to make a second essay: in the mean time, I beg leave to offer you the inclosed sketch of it, as the form will remain the same, though the dimensions and weight of apparatus will be less than of the one I have had on trial. A few words by way of explanation, will perhaps be necessary. A, is a small lever of wood, four feet long, whose elbow, or fulchrum, moves on a pivot at B. It is evident, that if the pulley C be forced up to the nave of the wheel by the spring X, the spokes will catch the pegs D D, and force the pulley round with it. An inch-wide strap of leather turns the other pulley E, which stands on an iron spindle squared at the part on which it is placed; the rest of it is rounded. At every turning at the land's end, by pressing the lever with the left hand towards the shaft G, the biggest end of it communicating with the pulley C, by means of the iron H, (which I shall describe afterwards,) slips it along the round axis of the wheel sideways an inch or two, till the pegs D D are out of reach of the spokes, and therefore cease their revolutions, leaving the seed barrel at rest. The wheel is of cast iron, not weighing more than 6 lbs; diameter 20 inches; its rim outwardly convex, and concave within, about 2½ inches wide. An iron scraper at F cleans it every revolution. The shafts of the barrow should not be more than 16 inches asunder at the axis, rather wider at the other extremities. The nave of the wheel is very small, with a bore in it, one inch square, to receive the axis, which is squared to fit it in the middle; the remaining part is rounded, that it may turn freely in the iron center N. The cups which are precisely the same as used in Cooke's drill, are nailed upon two wooden cylinders, diameter 4 inches and length, (being the width of the seed vessel and hopper,) not exceeding five inches. These two cylinders are bored through with an half-inch auger, to admit the spindle O. Thus, when it is required to change the cups, the spindle is withdrawn, and another cylinder put in its place, and fastened with a pin or screw passing through both cylinder and spindle. The seed vessel P holds about half a peck, (sufficient to sow three or four rows in a square piece of four acres,) and is raised or lowered by a pin at R, according as it feeds too slow or too fast. A tin slide within also regulates the quantity to be sown. In the centre of the pulley C is an iron collar, see fig. 2; the part S being of the thickness of the pulley, and let into it, the rest of it projects, and the iron H, fig. 3, clasps the rounded part of it loosely. Thus, when the spokes catch the pegs D D, the neck T turns round in the cavity M; and when the lever slides away the pulley sideways out of the reach of the spokes, the iron H keeps it out of the way of them, and therefore at rest. The shafts of the machine are

very light, four feet six inches long. Diameter of C six inches; of E, nine inches. Twelve cups on each cylinder, placed as in Cooke's drill in three divisions, four in each, in a line oblique to the axis. A cord or strap round the neck and shoulders of the sower, down to each end of the shafts, will keep the machine at the same angle of elevation throughout the whole work, and give an opportunity to him to use his left hand at the lever when necessary to stop the sowing.

With different cups, this machine will sow all kinds of seeds with mathematical accuracy. It will succeed best (as every other drill machine does) on tempered land, and in dry weather, but I believe may be used on the stiffest soils with advantage. The way in which I propose using it here, is, to plough the land with a narrow-set one-horse-plough, which lays it out neatly in nine-inch furrows. Between every two furrows appears a strongly marked drill, if I may so call it, up each of which the wheel passes, adding somewhat to the depth of the already formed drill. Hence, the better the ploughman, the straiter and more regular will the intervals between the corn appear. One harrowing along the drills will suffice, to bury the corn. On wet and stiff clays I should imagine this hand-drill will have its advantages, as it may be used when Cooke's drill cannot get upon the land, and if the labour of driving it should prove too great for a man to perform singly, a boy going before with a line would considerably ease the toil.

If any of your readers have looked on (as I have done more than once) and observed the tedious progress of hoeing by hand, and the extreme difficulty which the labourers in some of our best corn counties have to surmount, in picking out the weeds from among their broad-cast peas and beans, they cannot but be convinced of the disadvantage of not sowing their seed in equi-distant rows. To obviate this, dibbling has not unfrequently been practised, but the expence is heavy; another mode is *straying* in the corn by hand, and a third, *dropping* after the plough. But the irregularity of both methods is so great, as to be of but little service to the hoers; for the grains on coming up, seem to cover the surface, having no regular intervals between them; whereas, a small drill would remove every objection of this nature, and by the single-shared hoe, this operation, now so tedious, would become easy and effectual, and render even the most untoward soils, pliant and clean. If it should be objected, that the furrows on stiff and wet soils cannot be formed so as to leave the intervals open, as I have just observed is the case on our light soils, then let this drill follow every bout (as we call it) of the plough, and let the succeeding furrow be whelmed over it; of course shallow ploughing will be necessary. And further;

if it is desired to drill on *flag* i. e. the inverted sward of a clover ley, substitute an iron wheel with a triangular pointed rim, load the wheel with stones or lead, place an horse before, and going up the middle of each furrow, the seed will be regularly deposited in the groove cut by the wheel. Harrow as before. If the furrows are straight, the corn will appear as regular as any horse-drill whatever can place it. If the length of time which such a process requires is objected, I answer, that it is not designed for the use of those who have to sow 50 or 60 acres per day, but of those only, whose object is to sow 20 or 30 only in a season; and to such, the loss of a few hours is not of consequence sufficient to over balance the advantages to be gained by drilling their corn: and when these advantages can be purchased at so easy a rate, (about 30 or 32 shillings) there are few, I should suppose, if they are not blind to their own interests, but would make a trial with the proposed implement, subject to such further improvements as an ingenious workman may suggest.

I am, Sir, your's, &c.

AGRICOLA NORFOLCIENSIS.

ON THE COMPARATIVE VALUE OF SHEEP AS FATTENING STOCK.

To the Editor of the Agricultural Magazine.

SIR,

THERE appeared in your Magazine for February an extract from the papers of the Bath Agricultural Society, containing the result of an experiment, made to ascertain the most profitable of six breeds of sheep, viz. the Leicester, Cotswald, South-down, Dorset, Wilts, and Mendip. As it was conducted under the inspection of Mr. Billingsley, a man whose name stands high in the estimation of the agricultural world; and as six individuals, each of them, sent the sheep which they supposed to be the most profitable, and who would each feel themselves interested in the success of their favourite breed, any unprejudiced person would have thought that the most profitable would have been clearly ascertained; but I confess, had not the names of the parties who supplied the sheep, and of him under whose inspection the trial was said to have been made, been stated by you; so far from supposing it the communication of an enlightened agriculturist, to the first agricultural society in Europe, I should have thought it the production of some person prejudiced against the Leicester sheep, who thought there might be some small chance of injuring them in the opinion of those at a distance from where the experiment was said to have been made: and as in 1792 there were many counties in which they had scarcely

made their appearance, for a time he very probably might have succeeded.

As a very great proportion of the sheep stock in Norfolk consists of the Leicester and South-down breeds, I have had many opportunities of observing the comparative increase of each, and I assert that it is not only improbable but absolutely impossible that a healthy Leicester sheep should not gain more than 20 lbs. in 48 weeks, where a South-down of the same age would gain 36 lbs. and in this assertion I am confident I should be supported by the most zealous advocates of the latter breed. I am convinced they are both very valuable breeds of sheep, and that we are under great obligations to Mr. Coke, to whose meritorious exertions we are almost exclusively indebted for their introduction into this county; and I have little doubt that one of them will, by the Duke of Bedford's experiment, be proved the most profitable in the possession of this island.

As you very properly observed, in a note, the nett produce of the five Mendip sheep, instead of 3l. 17s. 4d. as is stated in the extract, is 4l. 7s. 4d. which places them next on the list to the Dorsets, whose produce was 4l. 8s. 9d. and making allowance for the additional quantity of food consumed by the latter, the former will be found by far the most profitable sheep. From the 3d to the 10th of April the Dorsets eat of cabbages 29 lbs., of hay 123 lbs.; from the 20th to the 27th of June, of vetches 1050 lb.; from the 1st to the 8th of December, of cabbages 526 lb., of hay 43½ lbs.; the whole of which amounts to 555 lbs. of cabbages, 1050 of vetches, and 166½ of hay; whilst the Mendips in the same time consumed only 446 lbs. of cabbages, 128½ of hay, and 870 of vetches; not so much by more than a fifth; consequently there might have been six of the Mendips kept upon the food which was consumed by the five Dorsets, whose produce would have amounted to 5l. 4s. 9d½., exceeding that of the Dorsets by 16s. 0½d. Most probably had Mr. Billingsley's communication been examined before the Bath Society, an error so obvious would have been immediately detected; and had it been so clearly demonstrated that the Mendip was so much the most profitable breed of sheep, I have not the least doubt that long before this time they would have been dispersed over the whole kingdom, and that the Mendip Twp Society would have exceeded in opulence their brethren in Leicestershire.

It was with great pleasure I saw that Dr. Parry's sheep obtained a prize at the last meeting of the Bath Society, and that pleasure would be much increased by seeing his promised answer to Practicus.

I am, Sir,

Neighbourhood of Holkham,

March 16, 1803.

Your obedient Servant;
A NORFOLK FARMER.

For the Agricultural Magazine.

ON THE DIFFERENT KINDS AND PROPERTIES OF WOOL, &c.
COMMUNICATED BY MR. COLLINS, OF DEVIZES, TO THE
BATH AND WEST OF ENGLAND AGRICULTURAL SOCIETY.

SURREY.—*BANSTED* Downs; short, thick, close; I only saw it on the sheep's back. *Common heath*; longer, yet soft, coarser, much filth or hoar. *Sand heath*; fine, silky, full of white and black sand.

SUSSEX.—*Down*: *South Down*; short, thick, inclined to harshness. *Underhill*; the old sheep kept one winter off the downs, and shorn in the summer, softer, but not so fine. *Weald*; falling wool, mostly from the Underhill wool, deep combing, &c.

HANTS.—*Forest*; small, fine, filthy, sandy. *Down*; larger, harsher. *Broken up*; larger and harsher still, does not recover in a man's age.

DORSET.—*Down*; coarse and deep. *Forest or Common*; fine, filthy, sandy,

WILTS.—*Down*; fine, soft, clean, white, before the breaking up so much down, and the introduction of the large breed; now clean, white, coarse, not soft. *Inclosure*; mostly fatting or to be put on fatting.

SOMERSET.—*Inclosed*; a deepish thin wool, yellowish, soft, and silky. *North part*; thicker, shorter, not so fine, but good.

GLOUCESTERSHIRE.—*South part*; large, deep, combing, strong, whitish, rather coarse. *North part*; more on the fatting.

MONMOUTHSHIRE.—*Forest or Common*; small, yellowish, fine healthy, and mossy. *Inclosed*; small, but larger, yellowish, fine, clean, thick matted, not trinded.

HEREFORDSHIRE.—*Rye-Land*; thin, hungry, harsh, out of proof, worse and worse; in the *working or sand ground* apt to be filled with the beards of the rye. *Inclosure*; thick, yellowish, the finest wool in general in the kingdom, but much worse by mixture. *Forest or Common*; small, soft, silky, and filthy.

SHROPSHIRE.—*Forest or Common*; small, yellowish, soft, silky, filthy, most times thick haired, (or cat's hair), yellowish.

RADNORSHIRE.—*Forest or Common*; small, whitish, thicker, harder, filthy, and some sandy.

BERKSHIRE.—Deep, strong combing wool.

ISLE OF WIGHT.—*Down Wool*, is rather finer than the Wilts. Inclosures, and large farms, have gradually introduced a larger sort of sheep, and consequently coarser and deeper in the staple, and in the same or greater proportion lessened the quantity of short or clothing wool, whether to the emolument

of the community at large, or not, is a question; my decision is on the negative side.

The Whim of the Day.—The introduction of Mr. Bakewell's breed, has answered many people's ends, whose interest it was that this whim should take place and be continued, but of a woeful experiment to many who pursued this whim; from the introduction of the goggles, a disease not known to our unwise forefathers, but spread far and wide by their wiser children; besides thwarting the universal disposer of all creatures, who hath placed the smaller cattle, vegetables, &c. on the hills, and the larger in plains and low lands; and the folly of putting such large rams to such small ewes, is double, some having lost the greater part of their flock thereby. The goggles have nearly overthrown the whim of such large sheep, introduced at first by some noblemen, or men who had large estates in their hands, and vied with each other who should produce the largest and fattest cattle; which has been an astonishing injury to the community, viz. a small or middling family could dispense with a leg of mutton of 5 or 6 lbs. but cannot on any account buy one of 14 or 15 lbs. besides the strong, nauseous, cadaverous taste of the latter, compared with the fine flavour of the former.

Terms of art if not well defined, will leave the reader in the dark, or at least liable to err.

WOOL—an uniform hair, protruded through the skin of an animal from a root, and which does not fall off without some violence or disease in the animal.

FUR—is a hair of a capillary nature, and usually such creatures have two coats a summer and a winter one; sometimes these are mixed, which is an inconceivable damage to the medley cloths and seems to call for a remedy if possible.

FLEECE,—the wool shorn off one sheep, and wound up together by a band twisted out of some parts of it.

TOP,—in the fairs at Hereford, &c. the same thing, though sometimes through avarice the fleece is broken into several parts, and every one wound up is called a top, and the seller can suit himself as the sum of the scale, in trindred wool, which is wound up as close as possible in the form of skittle pins, each is called a top. A pack, in the country 244 lbs. when fit for use in London, 242 lbs. In Romney Marsh, and Essex, part of Surry, Sussex, and Hants, the wool cloth is filled, then weighed, deducting 4 lbs. in every twelve score, as customary allowance to the buyer. In Sussex the todd 32½ lbs. in Hants, 31 lbs. upright, or 30½ lbs. turning. Reading fair 29 lbs. The standard weight for clean wool fit for use 30½ lbs. the standard todd 28 lbs. the weight in Wilts, 21½ lbs. The stone at Hereford, &c. 12½ lbs. much altercation between the buyer and seller about the half pound; the wool-stapler allows it on

wool fit for sale, and therefore it seems but reasonable to have the same advantage when he buys, that is far short of an equivalent in the common Forest wool.

STAPLE.—If a sheep with a good coat on him walks, the wool *parts* in many places; if one of the partitions were to be plucked or cut off, that would be a staple, and there are a variety of terms of art used on this occasion; as long, short, thick, thin, hovery or frothy, hard, harshy, soft, smooth, clear, strong, rotten, weak, colted, felted, matted, hitched in the middle or ground, in proof, or out of proof. If combing wool is matted in the middle of the staple, it will not open in the suds, and in combing will run almost to pinnels, if at the ground it will open, and is but of little harm.

SORTS.—Combing, we only made matching, and body. Information says fifteen or sixteen different sorts, where the combing is tried, sorted, or used, regarding the fineness of the hair, and the length of the staple; there is a refuse after combing left in the combs, called pinnels, used for linseys.—Short wool, we made eight sorts of it, and those used for various purposes.

Selling prices about 1780.

Matching 11½d. to 12d. Body 8½d to 9d.

	Hereford.	Shropshire.	South Down.	Wilts.
	s. d.	s. d.	s. d.	s. d.
Choice locks	- 2 6	2 0	1 9	1 6
Overlookings	- 1 4	1 3	1 1½	1 0
Middle Fine	- 1 0	1 0	0 11	0 10½
Running Fine	- 0 10½	0 10½	0 10	0 9½
Second (no distinction)	0 9	Abb. 0 8	Warp. 0 6½	list 0 5

Buying prices.

Herefordshire stone from 18d. to 2s. Shropshire, Radnorshire 12d. to 14d. South Down 25s. per todd to 32s. Wilts 9½d. to 10d. per lb. Hants 22s. per todd.

The wool of those Spanish sheep which I have examined, is degenerated below the quality of the true South Down wool. It is my opinion that most of the Sussex sheep introduced into Hants. and Wilts. are already considerably degenerated, as to the wool, in shortness, fineness, and quantity.

There is a very remarkable quality in *black wool*, which is, that moth gets into it much sooner than into *white*, and even if made into cloth, the moth cannot be easily kept out of it; but if the wool be dyed, that quality is destroyed.

Mention has been often made of *improvement in the breed of sheep*, to me it appears a very vague phrase without any determinate meaning. If the farmer, or grazier, or butcher, gets more money by dealing in any particular description of sheep, they judge it an improvement whether the quantity

of wool, size of the sheep, its fatness or its tallow and pelt be the most remarkable.

Yolk in wool seems to be the inspissated perspiration of the animal, but not sweat; for that is watery and saltish, which would corrode the skin of the animal, as we experience in the water running from the eyes or nose, excoriating wherever it runs; but the yolk seems to be of an oily nature, easily miscible with water, and will scour almost as well as soap. The quantity at a medium of Hereford, Shropshire, Sussex, Wilts, is about half the weight of a yolkly fleece. The yolk in a fleece, weight 3 lbs., will be near 1½ lb., which is the customary allowance to the wool-buyer: if any sheep has escaped washing, and is shorn in the yolk, the Farmer sometimes orders such fleece to be hard-washed, which does much harm, as it mixes the fine and the coarse together, so that they are with great difficulty afterwards separated from each other; and some, out of covetousness, near shearing time, shear the dead skin, and wash that wool; which is worse still if it be used together, as it is a cause of extraordinary shrinking; but if in either of these cases they would use it for blankets, mops, &c. for their own use well and good.

On the Choice of Sheep. With a view to improve the wool of a flock of sheep, at shearing time, take notice of the fleece when cut off, look at the bottom or part of the separation; if it be *stitchy-haired*, mark that sheep for sale or fatting, whatever other good qualities it may be possessed of. If thin of wool on the back, let that also be marked for sale or fatting; because when it rains long or hard, the water penetrates easily to the skin on the back, washes out the yolk, and chills the spinal marrow. In the choice of your fleece for stock, avoid as much as possible a medium between combing and clothing wool, as such would not be so useful for either purpose. Mark the sheep bearing such wool for sale or fatting. If your sheep has a very coarse breech, mark it for sale or fatting. Separate all these, as well as scabbed, giddy, fly-blown, foot-rot, dogs or pigs mouth, scouring, or any having an infectious disorder, from the flock, and on no account whatever suffer them to be with it.

In the first choice of the ram or ewe, never go farther from your own farm for either, than you can help. If your's be down land, buy from off the down; if inclosed, from the inclosed. Remember to buy from worse land, if possible, than your own, because there is a greater probability they will thrive in your keeping; but take care not to keep them too well, as that may be attended with great inconveniencies, if not with loss; for a sheep should work hard for its maintenance whilst in the flock, yet not be pinched. Search the coat

of the ram narrowly, to avoid a *stitched-haired* fleece; for this would so damage your wool in two years, that it could not be recovered again, without changing your flock, in twelve or fourteen years. Again, however handsome the shape, however fine the wool, reject him if he is not a *close thick coat*, in which is plenty of yolk (a certain sign of health) along the back. The same care should be used in choosing the ram, whether for combing or clothing wool. Buy your ram a little before shearing time, if you can; not at any fair or market, but at the Farmer's house; for then you will see the ram as he is, without being shorn or trimmed by the *sheep-barber* purposely for sale; then you will also know the depth or length of the staple; the shorter, finer, and thicker it is, the better for clothing wool; the longer, thicker, and finer, the better for combing wool. As to the ewes they are rather to be raised out of your own flock, than bought in from elsewhere; as they will be more naturalized to the soil, and other circumstances peculiar to the farm.

When a sheep dies, get a surgeon to open or dissect it; get him to make his remarks as he proceeds, noting them down in a book for that purpose; thus do for two or three sheep in every disorder; you will thereby acquire skill enough to examine a dead carcase by yourself.

Disorders in Sheep. The rot or, consumption, the pelt rot, or falling of the hair; on some the foot rot, called the gout; the hunger rot, or starving; the goggles, the red water, or dropsy; the stone, the fly, or maggot; giddiness, dog or pig's mouth, broken mouthed, the worm in the tail, the shab, itch or scab, lice, dog worried, bit, or torn, the small and large tick, the staggers, the chill.

The Rot or Consumption is frequently the effect of a cold, to which sheep are very liable who have thin coats, and lodge on wet lands, as appears by their frequent coughing. How the *flukes* get into the liver, I can no more account for than how various kinds of worms are bred in the human body.

The Pelt-rot, or falling off of the hair or wool, arises first from a sudden alteration from a scanty to a full feeding; secondly, from a *partial fever* in the spot where it falls off, as on the neck, shoulders, back, or the rump; thirdly, the shab, loosening it at the ground; fourthly, gangree nor sphacelus, which the falling off of the wool discovers.

The Foot-rot, or by some called the *Gout*, is said by most Farmers or Shepherds to be infectious. The best information I can get concerning this, is, that between the claws of the fore feet (as I do not find it attacks the hind feet) a swelling is perceived, which tends to separate the claws in some degree. On squeezing or lancing it an *hairy worm* is taken out. The

place being anointed with some ointment, and bound up for a few days, the cure is effected.

The Hunger-rot generally proceeds from the Farmer's poverty or covetousness, in giving very bad hay for their winter provision, which they do not eat.

The Goggles, a disorder unknown to our ancestors, but by comparing the different accounts of the effects together, appears very plainly to me to be a paralytic stroke, affecting the spinal marrow.

The Red Water, or the Dropsy. As the animal swells, the blood almost serum, watery bladders in different parts, chiefly in the fore part of the animal's body, and the skin, when stripped off, has red spots, in various parts and of various sizes. My conjecture is, that the wool, usually called *frothy*, is owing to this disorder, a want of *yolk dryness, harshness, thin and weak staple*, soon becomes dead, little or no proof, on breaking it *cries out*, and much dust flies off. All these symptoms are to be found in wool, where the sheep are fed constantly on a very light, sandy, arable soil.

The Stone is not a common disorder, I have never heard but of one instance of it.

The Ely or Maggot. If this happens before shearing, the sheep is indisposed, and does not yield a proper quantity of yolk, and thus it becomes a proper nidus for it to deposit its eggs, which are soon hatched by the heat of the body. The maggots immediately feed on the flesh of the sheep; but if they are not destroyed, by applying tar, or some other known remedy, to the aggrieved place, they increase so fast in number and size, that the sheep itself is soon destroyed.

Giddiness. This is said to arise from a worm or maggot under the horn on either side, and that the turning round is the effect of this worm or maggot.

Broken-mouthed, a manifest symptom of age and decay.

The Worm in the Tail. The hair drops off, the animal restless, frequently rubbing the part affected, hindered from eating quietly its food by smart or pain.

The Shab, Scab, or Itch, said to be infectious. I am told there are living insects, whether of the same form as in the human itch I do not know; once I saw a scabbed sheep washed with human urine, the consequence whereof was, that in a day or two the scab spread so far as the skin was wetted with urine. The usual remedy is tobacco steeped in water, with some oil or spirit of turpentine added thereto, and the aggrieved part washed therewith. But as it is always used with oil or spirit of turpentine, it seems to me probable that the turpentine is the specific, properly lowered down with water, according as the case may require. I am just now informed by a Farmer, that his shepherd gets strong to-

bacco and flour sulphur, and boils in the meat brine, and afterwards puts into it oil or spirit of turpentine, using it without any water, and by applying it in small quantities.

Small and large tick. These abound most with the animal that is diseased, and may therefore be considered as a sign of unhealthiness. An abundance, even of the small ticks, gives the wool a yellow greenish colour. The fineness and softness is increased thereby. The large tick I have only found in the Sussex and Herefordshire wool; in the latter, I have never found any harm therefrom, but in the Sussex wool and sheep, it produces much harm to both.

The Staggers. This disorder attacks lambs; if discovered in time, the shepherds bleed them frequently in the eye vein, and thus a cure is obtained.

When such a multitude of sheep died after shearing in June, 1795, I found by enquiry, they were of the best, stoutest, and healthiest sheep; as the weather was severe, they, to get away from it, got so close together, that they were stifled; whereas the weaker, not being able to thrust in so close, escaped with their lives, as very few of the latter died in comparison to the former.

The Lask or Scouring, Query, if from too moist food, indigestion, griping or what other cause? if not stopped, it generally proves mortal.

Preservation of the Health of Sheep, let the Farmer frequently look over his flock, and see that their tails are kept clean. Never suffer them to lodge two nights in the same fold; it is better to fold over twice than to do thus, I am informed, sheep taint where they have been, sooner than other animals, perhaps because of their numbers. A very common disorder ewes are liable to after yeanning, is a *stoppage in the lacteal ducts of the udder*, sometimes in that leading to one of the nipples, and sometimes to both; the udder swells universally with partial hard knobs, which soon bring on an inflammation, and if not stopped, perhaps, in the course of twenty-four hours, part, if not the whole, of the udder mortifies. The intention is to stop the mortification. The process of cure is, to clip off the wool as close as possible, to open with a razor or other sharp instrument, the principal lacteal duct or ducts, to squeeze out the morbid matter, and put in a little fresh butter; and to keep the sheep separate from the flock. The ewe frequently loses the use of one teat and sometimes both, if but one, she will maintain the lamb; if both, the lamb to be taken from her, and the ewe fatted.

ON THE CULTURE OF THE DRUM-HEAD, OR COW, CABBAGE.

To the Editor of the Agricultural Magazine.

SIR,

THE Honour you have done me of inserting my former communications, and the early attention you paid to them, has induced me to send you the following account of the culture of the drum-head, or cow, cabbage; a plant on which I have made some experiments with considerable success, upon land deemed but little calculated for that purpose; namely, on a light mixed soil, of the value, according to the present high estimate, of, from twenty to twenty-five shillings per acre; lying principally upon a gravel about eight or nine inches from the surface, and subject to be infested with red weed, (the trivial names of our three English poppies, the *Papaver Argemone*, *Rhæas*, and *Dubium*.) At first I met with very little encouragement from my neighbours, who smiled at my supposed folly, as in their opinion cabbages would not succeed but upon a stiff or very rich soil. This representation, far from discouraging me, tended rather to excite my industry; and I became anxious, by a spirited culture, to refute, if possible, those objections which I could not but consider as the effects of ignorance and prejudice. Accordingly, I determined the ensuing year, to make the attempt both with autumn and spring-sown plants. Having prepared a plot of ground in my garden for seed beds, the former were sown the first or second week in August, and as soon as they had acquired a sufficient size were pricked out on fresh beds, previous to the winter: the latter were deposited in the ground the beginning of the March following. My land was, at first, prepared according to the mode generally adopted. It was thrown into narrow ridges, or what is commonly called four-furrow work, and planted with a single row along the top of each ridge, at the distance of two feet and an half, or three feet, plant from plant. The autumn sown plants were set out into the field during the month of May; and the spring ones as early as possible in June, varying, however, according to season, size of plants, and other circumstances. They were afterwards hand-hoed, horse-hoed, and earthed up. The produce very much exceeded what my neighbours had given me reason to hope for, and was certainly superior to any crop of turnips on the same soil, but undoubtedly fell short of my own expectations; and my mode of culture I found defective in several particulars. Nothing promotes the luxuriant growth of cabbages so much, as repeated earthings, but when they are planted upon narrow ridges, it is scarcely possible to do it effectually. The double breasted

plough with expanding mould boards, the implement I made use of for this purpose, would not raise the earth sufficiently high, and the farther assistance of the turnip hoe, which became absolutely necessary to complete the process, by drawing up the earth towards the stems of the plants, left them upon so sharp a ridge, that they could derive but little benefit from falling showers. Aware of these defects, I determined in future to alter my mode, and adopted one which I have pursued for several years, and which has fully answered every idea which I had previously formed of its success. In the hope that it may prove as useful to others, as it has been serviceable to myself, I have ventured to send it forth as a candidate for a place in your Magazine, whose increasing reputation will render it a valuable repository for agricultural experiment, and whose increasing circulation will, I trust, amply reward the spirited exertions of its proprietors.

Instead of throwing the field I design for cabbages into four furrow work, I have it ploughed into broad flat ridges from twenty to thirty yards across. The number of ploughings vary, three, four, or five, according to circumstances. Previous to the last I have from fifteen to twenty cart loads of manure, from the compost, or dunghill, spread over the land, and immediately scaled in. After this it is ploughed as deep as the soil will admit, and with a furrow as nearly as possible nine inches in width. In this state it lies, ready for the reception of the plants, till rain falls, but should that hold off more than a fortnight, the land is ploughed afresh. When this operation has been properly executed, any person standing at the end of these ridges and looking up the land, will plainly discover a narrow seam or valley between each furrow sufficient to direct the eye, of which I make the following use.

In the seam or valley between the first and second of these, beginning to reckon from the open furrows (on either side the field) which are made by the completion of the ridges, a man with a blunt dibble, such as is commonly made use of for the planting of potatoes, make the holes at two feet and an half or three feet distance from each other, and about seven inches deep, a boy follows and drops a plant in each hole, and a man after him sets them upright, and closes the earth about their stems. When one row is finished, we count off, either to the right or left, to the fifth seam including the one already planted, and proceed as before; in this manner we go on planting every fifth seam, till the whole is completed. By this method the plants are set on the level at three feet distance row from row, and in straight lines. As I always have my land ready prepared, and take the advantage of the first shower that falls, my plants seldom require any watering. When they have recovered the removal, the hoers are sent in,

who with the turnip hoe cut the intervals between plant and plant; and draw some fresh earth to their stems. The alleys are hoed by a shim, upon the principle of the one used in the Isle of Thanet, but upon a lighter construction, and drawn by a single horse. Should these alleys have become too much compressed by the planting and subsequent operations of hoeing, I make use of an implement which is an humble imitation of Chateaufieux's single cultivator, which sufficiently answers the purpose of loosening the soil. The double breasted plough follows, and passing along the centre of the alleys throws still more loose earth on each side towards the plants. By this (which takes place about a fortnight after the hand hoeing) the land is thrown into narrow ridges, but the plants instead of standing on the top of a ridge, are placed in a valley with a narrow ridge of earth raised on each side of them; in consequence of this every shower that falls is conducted to the roots of the plants, instead (as in the former method) of being diverted from them. In about three weeks or a month the hand-hoers level these ridges by drawing the earth towards the stems of the plants on each side, which at the same time destroys all weeds. The cultivator loosens fresh soil in the centre of the alleys, which are now become open furrows, and the double breasted plough passing once or twice along the same, as occasion may require, throws a further supply of food towards the plants, still leaving the edges of the ridges higher than the centre. After this they will very soon so completely cover the ground as to require no farther attention, except that in the Autumn it will not be amiss to look them over occasionally, and keep them clear from caterpillars, (the larvæ of the common yellow butterfly) an enemy to whose attacks all the cabbage tribe are peculiarly subject at that period.

The produce of an acre of cabbages, cultivated in this manner, I have ever found fully equal to, and in many instances much superior to any acre and half of turnips on the like soil. Nor have I ever had reason to think, after the most accurate attention to the following crop of barley or oats, that they left the land in an impoverished state, an objection I have frequently heard advanced against their culture.

The difficulty of compressing a subject of this kind has led me to trespass upon your patience longer than I at first intended or expected. Indeed I am not satisfied that I have even now steered clear of obscurity. The candour, however, of your readers will lead them to admit that it is no easy matter to give a clear detail on paper of any, even the most simple, operation in husbandry. I shall therefore throw myself wholly on their mercy, and should any difficulty occur which has escaped my observation, I shall be happy to give any farther

explanation, which they may think proper to require. Equally ready shall I be to explain any provincialism into which I may have inadvertently been betrayed.

I cannot dismiss this account much as it has already exceeded the limits I had prescribed myself, without the addition of the following detached remarks.

I mentioned in the former part of my letter that my cabbages were in my first experiment, *horse-hoed*. The method I adopted in this operation, was the one recommended by Dr. Anderson, in his work entitled "*Agricultural Recreations*." On some soils, no doubt, it might prove very efficacious, on mine, it certainly produced no visible good effects. It is hardly necessary to add that I relinquished it, as useless and troublesome.

Another remark relates to the expediency of cultivating autumn sown plants. Unless they are required for very early consumption, by which I would be understood to mean from the beginning of October, till Christmas, I would by no means recommend their adoption on any soil of a similar description with my own. I have, upon many repeated trials found, that they arrive at too advanced a state of maturity, and shed their large leaves. Should the autumn prove rainy, the cabbage itself bursts open, and exposes the interior and most valuable part, during the ensuing winter, to injury from frost and moisture.

Another objection to them, arises from their being frequently materially injured, if not totally destroyed, by maggots at the root, even after have been set out into the field, and have acquired a considerable growth. As I never have observed a single instance of the plants which are raised in March, being subject to this attack, and as they are infinitely less liable to the objections I mentioned before, it will, I think, give them a most decided preference.

I have the honour to be, Sir, your obedient servant,

CASTOR.

For the Agricultural Magazine.

ON THE BUSH-VETCH, EXTRACTED FROM THE BATH PAPERS.

BY THE REV. MR. SWAYNE.

THE Bush-Vetch is a plant whose root is perennial, the stalks are many, some of them shooting immediately upwards, others creeping just under the surface of the ground, and emerging, some near to, and others at a considerable distance from, the parent stock. The small leaves are connected together by a midrib, with a tendril at the extremity; the flowers are in shape, like those of the common vetch, of a reddish purple colour; the first that blossom usually come in

pairs; afterwards to the number of four at a joint. The pods are much shorter than those of the common vetch, larger in proportion to their length, and flatter, and are of a black colour when ripe; the seeds are smaller than those of the cultivated species, some few speckled, others of a clay colour. Being a perennial, it should seem to be a very proper kind to intermix with grass seeds, for laying down lands intended for pasture; and that it is as justly entitled to this epithet, as any herbaceous plant whatever. I think I may be allowed to affirm, having observed a patch of it growing in one particular spot of my Orchard, for these fourteen or fifteen years past. It is not only a perennial, but an evergreen; it shoots the earliest in the spring of any plant eaten by cattle with which I am acquainted, vegetates late in autumn, and continues green through the winter, though the weather be very severe; add to this, that cattle are remarkably fond of it. These peculiarities it should seem, would make it particularly valuable to the Farmer, as a green food for his sheep in the winter and spring, when food of that denomination is so exceedingly scarce.

I imagine the chief reason which has hitherto prevented its cultivation, has been the very great difficulty of procuring good seeds in any quantity. The pods, I find, do not ripen altogether; but as soon almost as they are ripe, they burst with great elasticity, and scatter the seeds around; and after you have procured the seeds, scarcely one-third part of them will vegetate, owing to an internal defect, occasioned by certain insects making them the nests and food for their young.

In the autumn, I collected a quantity of these seeds from the hedges.—The following March, I sowed them in drills in a plat of ground in my kitchen garden, which measured exactly five yards square; they were sown in eight drills, and as thick in the drills as I would have sown peas. They came up very thin and irregular; in some places, there was more than a foot vacancy between plant and plant. This I was much surprized at, as the seed had been carefully preserved during the winter, and I could not, from their appearance at the time of sowing, suspect them to be the least defective.

The plants grew very sparingly till towards autumn, but before winter they made a tolerable appearance. Early in July, I collected some more seeds from the hedges, tied them up in paper, and put them into a drawer in my bureau. Upon opening the paper in September, I observed a vast number of dead flies in it; and as many of these seeds with a small hole in each. The number of the flies was 280, the whole number of seeds 1080.

These flies upon examination, proved to be a small species of *Ichneumon*. This puzzled me not a little, as I had learnt these insects were a race of cannibals, from their *larvæ*, or

caterpillars, always feeding on other insects. Upon which I opened many of the other seeds that had no holes in them, and in several of these, discovered another insect alive, and in different states of its growth. This proved to be the *bruchus pisi* of Linnæus, a near relation of the weevil, and the *attela-bus*. From hence I surmised, that at the time when the Bush-Vetch blossoms, the female *bruchus* lays her egg within the blossom, and the *ichneumon* immediately after deposits her egg in the same place.

After the frosts were over, I was much pleased to observe, that scarce a plant of my vetches had been killed by them, and their verdure very little injured. In April, they had entirely filled up the ground, and were beginning to flower; at this time, as I expected, I found numbers of the *bruchus* intruding themselves into the blossoms before they were scarcely open, and the attendant *ichneumones* ready to follow them. I used every method I could think of to chase away these insects from my crop, by strewing soot over, kindling smoaky fires round, &c. but all to no purpose.

In the beginning of May the vetches were in full blossom, and it was amazing to see what a croud of insects were swarming about them. At that time, I intended to preserve the vetches for seed; but some time after, observing that they were beginning to rot from their over-luxuriance, I cut them without taking any particular account of their produce. They were cut twice afterwards during the summer. Having remarked in general, that the produce of these cuttings was very great, I was determined the next year to keep a particular account. The whole plat then of twenty-five square yards produced

1st cutting	16 lb. green	- -	supposed 4 lb. dry
2d ditto	130	ditto would have weighed	21½ dry
3d ditto	- 62	ditto would have weighed	- 14 dry
4th ditto	- 76½	ditto would have weighed	- 12½ dry

Total	284½ green	52 dry
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An acre therefore, (reckoning 4840 square yards to the acre) in the same circumstances, would have produced the total amount of

tons	cwt.	qrs.	lb.
24	11	3	3 green
4	9	3	15 dry fodder.

N. B. You are to recollect, that at the time the first cutting was made, there was scarce a green blade of grass to be seen; and that the season, till after the third cutting, was as unfavourable to vegetation as perhaps could be.

ON THE SUPERIORITY OF THE ROW-CULTURE.

To the Editor of the Agricultural Magazine.

SIR,

YOUR very able and intelligent Correspondent Agricola Norfolciensis, as the best of us cannot be intirely exempt from errors and prejudices, seems in a small degree, tinctured with that partiality, of which he, without the least mixture of harshness or illiberality, however, accuses others, I allude to his late remarks on Messieurs Close and Amos's accounts of the profit of Drilling, as stated in the New Farmers Calendar. His objections are of so trifling amount, either in money or consequence, that allow them then full force, and a vast superiority remains in favour of the drill system. According to my recollection, for I have not the book immediately at hand, the author of the Calendar proves a vast balance in favour of row-culture, even-handed, whether as to quantity of seed, or product, and allowing an extra expence for drill implements, which surely does not evince a need of any little arts of exaggeration in favour of the new practice. This being a fair statement, we may be allowed to suspect, that the Norfolk Farmer has hitherto been unable to clear his mind entirely from old prejudices, and that, although convinced, he probably yields with reluctance, his assent to the reality of the modern improvements. The most heavy of the old "plodding" race of farmers could scarcely be misled by the statements in question, of the seed quantities; not barely on account of their being matters of fact, with even-known names annexed, but also from the general publicity of the drill-culture, and the small addition or diminution which it can be necessary to make in the quantities, granting any at all to be necessary. The best proof that the common farmers have not "laid down the book unconvinced," is, that it has actually found a circulation amongst that class beyond all former precedent, and that since its publication, the row-culture has had a wonderful increase.

With respect to the seed quantities used broad-cast, as stated by Mr. Close, if it be considered that they relate to times previous to the excessive rise in price, which has had a material and universal effect in the use of seed, and that he has quoted the broad-cast quantity of oats at four bushels, and that of barley at three, when it is notorious, that in many districts, it has been customary to sow six and even seven bushels of oats per acre; and that in not a few, no less than four of barley, as well as wheat, have been usually sown; it need not be acknowledged that he has over-shot the mark. In the smallness of the quantity per acre, sown with the drill, I think with

Agricola Norfolciensis, that Mr. Close is in an error; but this is still nothing more than our opinion and our practice, in opposition to those of Mr. Close. Mr. Close's intervals for peas, are, I apprehend, at least twelve, if not eighteen inches wide. In Kent, with eighteen inch intervals, no more is frequently allowed than three and an half pecks of small peas per acre, but of whatever kind, I never use less than five pecks.

The attack on Mr. Amos's oat experiment seems totally devoid of grounds, in any view whatever. That the drilled acre had only five, whilst the broad-cast had eight harrowings, appears a simple fact, which it is natural to suppose, the accidental different state of the land rendered necessary. That the breast-hoeing cost so little, and the hand-picking so much, is to be placed to account of the rate of labour in Lincolnshire. Could the broad-cast oats be possibly breast-hoed, or is it of no real benefit to hand-weed them. As to the price of the one being 2s. 2½d. per bushel, and the other 2s. 3d. such is merely an actual fact of separate sale, at different prices per quarter, making a fraction when reckoned by bushels. The strictness of a separate sale was certainly proper, in an experiment, as were all the other *minutiae*. And what, in fine, do the objections amount to, upon the harrowing, hoeing, and weeding? Three shillings only; which being deducted, leaves still a superiority of one pound per acre, surely a most important one, without recurring to the tilth, a yet higher advantage than any instant pecuniary one, resulting from the row-culture.

The adoption by Mr. Lawrence, in his Farmer's Calendar, of the term row-culture, appears to me judicious. It is a convenient general term, comprehending all the various methods, of drilling, rilling by hand, and dibbling, by which corn is usually planted in rows. I know, however, that the use of this phrase has been treated by various critics, as a piece of literary affectation, in that author, and for ought I know, it may have really so originated. What is more remarkable, Mr. Lawrence, who is such a strong advocate for wide intervals and the horse-hoe, instead of giving his examples of the success of such, has chosen rather to quote Mr. Amos's practice, which consisted of narrow rows and the use of the hand-hoe. A similar inconsistency, at least singularity, appeared formerly in his practice: I well recollect seeing him in Hampshire, in 1791, putting in wheat, with Cooke's drill, at nine inch intervals, at the same time, professing to give a decided preference to those of double the distance.

The sentence passed by *Agricola* upon M'Dougale's hoe, I have no doubt, is perfectly just, as well as the preference

given to the single-shared horse-hoe, in my opinion, one of the most convenient light tools, in our agricultural catalogue.

I am, Sir,

With much attachment to the Agricultural Magazine, &c.
Riselp, Middlesex, March 4. A FARMER.

ON SOUTH DOWN SHEEP.

To the Editor of the Agricultural Magazine.

SIR,

IN several of your late Numbers, I have, with much pleasure, observed the communications of Dr. Wilkinson, a gentleman farmer, who has often proved himself very capable of giving instructions in agricultural affairs; I have before me, a very valuable letter of the Doctor's in your 39th Number, on South Down Sheep, and Sussex Cattle, of the latter of which, he has given a very just description. In regard to the cross of New Leicester with South Down Sheep, I must acknowledge, that I do not very clearly see its necessity, since, if size be the object, the Ellman's variety of South Downs will fully answer that intent. The question is, whether by enlarging the sheep, you do not lose by the consequent inability of stocking so many per acre. As to lowering the value of the Down wool by the Leicester cross, we will suppose it about balanced by additional quantity; probably, after all, the cross is of a harmless affair, and the whole of the improver's gain is to be sought in the trouble he has taken.

In a subsequent letter (No. 41.) Dr. W. allowing the quality of mutton to be advantageously effected by the sweetness of the South Down herbage, yet seems to deny a similar result *e contrario*. Nothing, I apprehend, can be more clear, or indeed more subject to the evidence of fact, than the superiority of grass, over turnip or cake-fed meat, be it mutton or beef. The Doctor would much oblige many of your Correspondents, as well as myself, by an explanation of the following passage on the subject of sheep husbandry: He says, "it is a common practice to purchase South Down ewes having the New Leicester cross, in the Autumn, at the fairs in Surry, lambs of which are sold in Smithfield time enough for the ewes to go off fat from the grazing grounds the same year." This may, indeed, be well considered as the most profitable system of sheep husbandry, and is executed with a celerity, of which the farmers of this neighbourhood have no conception. Supposing the ewes very full of flesh, as well as lamb, an association rather uncommon, yet the suckling, and the expedition after used to get them to market, must surely be a great bar to the existence of any considerable proof in them, when they arrive there. From Autumn to Christmas, is, in

truth, a very short period for the various purposes of buying ewes, lambing them down, fattening and selling the lambs, and afterwards the ewes themselves! We shall be somewhat impatient for a particular explanation of this, from your excellent correspondent, and in the mean time,

I remain, Sir,

Your very humble Servant,

Stowmarket, Suffolk,
March 10th.

JUVENIS.

ON FALLOWING LAND.

To the Editor of the Agricultural Magazine.

SIR,

IN preparing land for the reception of grain or other sorts of crops by repeated ploughings, or the frequent exposure of new and fresh surfaces, to the action and influence of the atmosphere, a variety of alterations and changes are produced in the earthy, as well as other kinds of materials that constitute the soils. The heavier or more earthy particles of the land, by being under different circumstances of the air and seasons, thus frequently stirred and turned over, are so effectually divided and separated from each other, as well as broken down, that even in most of the stiff sorts of ground, as well as those of the lighter kinds, there is a degree of pulverisation and mellowness effected, that could scarcely have been induced by any other means; in consequence of which, the portion of vegetable matter become so uniformly, and so extensively blended and incorporated, and the manures that are afterwards applied, so minutely intermixed with them, that the fibrous roots of the growing crops, of whatever nature they may be, are enabled to penetrate and extend themselves more fully, and of course to draw more regular and varied, as well as more abundant supplies of nourishment.

By the extreme division and pulverisation that takes place, and the great irregularity of surface which is produced in this way, the dews and light refreshing rains that so frequently occur in the early spring months, are more easily admitted and diffused through, and detained in the hollows and interstices of the ground, and thus contribute powerfully to the support of the crops in the early stages of vegetation.

The practice of fallowing may, no doubt, in many instances, be highly beneficial, notwithstanding the objections brought against it by writers on husbandry; but at the same time it must be admitted, that in some sorts of soil it will for similar reasons, be much more advantageous and useful than in others. On the lighter kinds of land, where full and luxuriant crops of different sorts of plants, as turnips, potatoes, &c.

may be grown, that produce a close thick foliage, by the use of the drill, and repeated hand or horse hoeing during their growth. The ground may be kept perfectly clean from weeds, and in a fine mellow or powdery state, without the danger of being injured by too much evaporation and exposure as in fallowing, and likewise in soils of the same nature, that are rich from the frequent applications of manure, it must be equally injurious and improper, to expose their surfaces frequently to the influence of the air, sun, and rain.

But in all the wet-bottomed, stiff, adhesive, and clayey sorts of soil, which constitute a large portion of the lands of the kingdom, where, from the closeness of their textures, and the great tenacity of their particles, but a very slight or indeed scarcely any degree of pulverisation has been effected, the practice of summer fallowing may often be highly useful and advantageous, not only by the great mechanical alterations that must necessarily take place in them, by the repeated ploughing and turning up of their parts to the influence of the atmosphere, but by their admitting the particles of the manures that may afterwards be applied, to be blended and incorporated with them in a more minute and extensive manner. The degree of friability and mellowness that is produced in this way in such soils, has also other advantages—such as those of admitting the roots of the growing plants to penetrate them with greater facility, and presenting a more extensive surface for them, from which they may draw their nourishment.

And as in lands of these kinds, there is a constant tendency to throw up abundant crops of root and other weeds, it is perhaps only by the frequent turning over of the soil, and the tearing of them up by harrowing, as is the case in summer fallowing, that they can be effectually eradicated and destroyed. It is principally in this view, that the working of such soils in the early spring or summer months, becomes so particularly necessary, as at the period in which the seed is to be put into the ground, neither the season nor the state of the weather, will admit of their being sufficiently broken down and reduced by ploughing, or the weeds to be destroyed. And it may be added, that wet lands by being turned over during the winter season, are liable in many cases to become more stiff and adhesive, by which the roots of the crops must be more limited, and confined in their means of acquiring nourishment from them.

It has been lately well observed, by Mr. Brown, in his agricultural report of the West Riding of Yorkshire, that when land of a dry, gravelly quality gets foul, it may easily be cleaned without a plain summer fallow, as crops, such as

turnips, &c. may be substituted in its place, which, when drilled at proper intervals admit of being ploughed as often as necessary; whereas wet soils, which are naturally unfit for carrying such crops, must be cleaned and brought into good order, by frequent ploughings and harrowings during the summer months; indeed, it is strenuously contended by the same author, that the most judicious intermixture of crops upon clay soils, will not preclude the necessity of a summer fallow; though, he admits it may go a great way in preventing the necessity of its being so frequently repeated. But Mr. Young,* whose experience has been considerable, while he allows, that there is no question at all of the merit of fallowing when composed with bad courses of crops, and who thinks, that if the husbandry is not correct in this respect, the fallowist will certainly be a much better Farmer than his neighbour contends; there are courses which will clear the foulest land as well as any summer fallow, by means of plants which admit all the tillage of such a fallow. Cabbages are not planted "says he," before June or July, winter tares admit of three month's tillage, if tillage be wanted. Beans well cultivated will preserve land clean, which has been cleared by cabbages, and in any case, two successive hoeing crops are he thinks effective in giving positive cleanness. These observations are not, he says, theory, they are practice: and it is high time that mankind should be well persuaded, that the right quantity of cattle and sheep cannot be kept on a farm, if the fallows of the old system are not made to contribute to their support.

There are probably, however, many situations of clayey soils so exceedingly stiff and wet, that though turnips, cabbage or bean crops may be grown upon them, they cannot, from the great labour and difficulty of their preparation, and the high degree of injury that must be done in the eating or carrying them off the land be to much advantage, or such as to admit of that sort of culture during their growth, that will keep the ground perfectly clean from weeds. In such cases, no course of cropping, however judicious, can probably be effectual in this respect: it is, indeed, well known to such practical Farmers as have had the management of soils of this nature, that it is scarcely possible to be effected, even by summer fallowing itself. It has also been justly observed, that soils of this description are so frequently from necessity ploughed over when wet, that an adhesion and sourness is produced, that cannot be removed without exposure to the summer's sun, and the pulverisation afforded by the repeated operations of the plough, the harrow, and the roller. There is no sort of crop that can in such cases supply the place of fallow, as

* See Young's *Agricultural Survey of Suffolk*.

turnips are highly detrimental; and though drilled beans may answer in the way of an assistant to fallow, and have the tendency of keeping lands clean that are already in a proper condition; it is supposed from the necessity there is of sowing them early, that they can never be beneficially substituted for the radical improvement that is produced by a clean summer fallow.

But even if such sorts of land could be kept perfectly clean from weeds, by the judicious interposition of bean, cabbage, or other similar crops that might be cultivated on them, it is evident, that the various beneficial products which have been mentioned, and which are the result in a great measure of the perfect pulverisation and high degree of aëration, that is produced by means of summer fallowing, could never be formed in such an abundant manner, as to be of much utility in aiding the growth of crops. Nor could they be in so suitable a condition for the admission and extension of the absorbent roots of the plants, that may be cultivated upon them. Yet, though these circumstances may demonstrate the practice of fallowing to be occasionally necessary, and highly useful on such wet adhesive clayey soils, as the proper and most advantageous quantity of stock for the improvement of such farms, can seldom be kept where it greatly prevails. The repetition of the practice should, in this view, be prevented as much as possible, by the cultivation and growth of green crops, as often as the lands may be in a fit state for them, and they can be had recourse to with any chance of success. The *ruta бага*, or Swedish turnip, as being a plant somewhat more adapted to wet, stiff soils, than either the common cabbage or turnip might probably in such cases be advantageously used as a green crop, and by being eaten off in the latter spring months, when the ground became sufficiently dry to bear the cattle or sheep without injury, admit of a pea crop; after which, the land would probably be in a suitable condition for wheat. But in all such cases, much must depend upon the degree of cleanness, pulverisation, and aëration, that has been accomplished by the occasional use of summer fallowing.

As there is great variety in the conditions of such soils as may occasionally require the aid of naked or summer fallowing, in order to render them suitable for the growth of clean grain or other crops; some, from the nature of their situation, and the subsoils on which they are placed, being more inclined to the retention of injurious moisture or wetness than others, consequently more disposed to be cold, and to the production of large crops of weeds; while others, from the large proportion of clayey or tenacious loamy materials that

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may be mixed and incorporated with the pebbly or other ingredients, may be more stiff and retentive, and of course more difficult, or more incapable of sufficient pulverisation, and of admitting the roots of such plants as are capable of being cultivated upon them, to readily establish themselves, and draw from them proper supplies of nourishment. And besides, the variety of these different states, there may probably be others that have not hitherto been well ascertained or attended to, such as may proceed from the differences in the qualities or properties of the clays or loams, as they enter into or exist in their compositions; upon each of which some diversity, in respect to the necessity, repetition, or method of conducting the business of fallowing, may depend. The correct Agricultor should therefore constantly keep them in view, whenever it may be requisite for him to prepare land by means of summer fallowing.

In regard to the method of performing the operation, it should always, like most other processes in husbandry, be conducted with a due attention to the circumstances and qualities of the soil, as more pulverisation or breaking down will evidently be required where the land approaches to the nature of a perfect clay, than where it has more of the loamy quality; and where the retention of moisture is considerable, more attention must be paid to the destruction of weeds, than where there is a greater tendency to dryness. Where the practice of naked fallowing is thought necessary to be performed, the most general method of proceeding is, for the land to be first ploughed up in autumn, a second time after the barley-seed season is finished, and two or three times oftener afterwards, as circumstances may render necessary, the ground being well broken and reduced by means of harrowing, and rolling in the intervals of the different ploughings. It is observed in Donaldson's *Modern Agriculture*, that in many districts, seldom more than three ploughings are given to lands in a course of summer fallow, one in autumn, or early in spring; another during the summer; and afterwards the seed-furrow. This preparation appears however, it is further said, extremely defective; as in an ordinary season it is scarcely possible that with so few ploughings, either the root or seed weeds can be completely destroyed; and when the summer happens to be wet or rainy, the lands under such management must certainly be in a very bad state for receiving the seed.

It has likewise been long since judiciously recommended, both in the preparation of lands, by winter fallowing for barley crops, and summer fallowing for those of wheat; that when it is first ploughed up after the harvest is over (which should always be done as deep as possible, and in narrow ridges,) no time should be lost in rendering the new turned up

soil as fine as possible by harrowing; as repeated trials and attentive observations have fully shewn, that such lands as are made fine before the sharp frost and winter rains come on, receive a much larger share of their influence than any other. But if the land be left in a rough state, there is seldom time for the rains and frost to penetrate or affect more than merely the outside of the large clods or lumps that are present. The outside may thus, indeed, be pulverised; but the middle of the lumps, wherever they are large, are found nearly in the same hard stiff state as when turned up by the plough. Hence it is evident, that the benefit of the air, winter rains and frosts, on lands thus left, must be only partial; and that of course, the harrowing it in the spring, especially when the latter of these are over, is too late for its receiving the full benefits which might otherwise have occurred from them, and the power of promoting vegetation not being nearly so great; therefore, to make winter fallows as fine as possible in autumn, is acting agreeable to nature. The greatest possible quantity of surface being thereby exposed to the atmosphere, and the land left in the state wherein the rains and frosts are most easily admissible: they are consequently more capable of penetrating and enriching the whole mass to a much greater extent. It is contended, that it has been invariably found, that the frost penetrates a quantity of earth, formed into a large hard clod, only partially, on account of its bulk and hardness; and that the same clod broken into four parts, would be thereby penetrated four times as much; or in other words, that four times the quantity of earth would be effected, and on a thaw be pulverised by it. For it is always found, after the breaking up of a severe frost, that all the small clods crumble easily into powder, while the large ones are only slightly reduced by the crumbling off of a portion of their external surfaces.

There cannot be much doubt, but that by reducing such stiff adhesive soils as require fallowing well, on their being first ploughed up, great advantages in the way of pulverisation may be accomplished, as in the spring and summer months they are apt to cake, and become so hard and lumpy as to be wrought with difficulty.

In order to fully ascertain the utility of this method of preparing fallows*, one half of a field of ten acres was left as nearly of an equal quality as possible in the rough state after ploughing, while the other was made very fine by harrowing and beating in pieces any large hard clods which the harrows could not reduce. In the following spring it was observed, that, that part which had been harrowed was much finer,

* See Bath Agricultural Society's Papers, vol. ii.

without any additional working, than the other could be rendered by repeated harrowings.

It is therefore evident, that upon most sorts of stiff, clayey soils, where fallowing becomes necessary, the first ploughings should be given, if possible, before the commencement of the winter season, and that they should also be well reduced by means of harrowing, in order to promote the decay of such vegetable matters as may be upon the surface of the land, as well as to promote a more complete state of pulverisation of the soil. This is often most usefully performed by gathering up the ridges, as in that way the ground is not only laid more dry, but the furrows more effectually opened for the draining off of the injurious moisture. In the second ploughing in the spring, which is generally before the cross ploughing, is given (oblique ploughing is preferable) these ridges ought to be well harrowed for several times, and occasionally rolled, that sufficient opportunity may be given to collect and remove every sort of weed that may be brought up to the surface. After this business has been properly performed, the land may be again ridged up by means of the plough, by which it is rendered less affected by wetness, and the portions of soil that had not been touched in the cross ploughing stirred. In this way a perfectly clean fallow may soon be produced. It has, however, been maintained, by some writers who have had much opportunity of examining the matter, that ploughing only is necessary; the collecting the roots of the weeds and removing them being useless and improper. But in the stiffer sorts of clayey wet soils, where we have imagined the following system to be occasionally necessary; it is almost impossible to get perfectly clear of different sorts of root weeds in this way, from the cloddy manner in which such lands break up in the operation of the different ploughings, the earthy lumps often containing many that are not in the least degree injured in their power of taking root, by the heat to which they may have been exposed in such ploughings. In these cases they can only perhaps be effectually eradicated and destroyed by the high degree of pulverisation, that may be accomplished by means of frequent harrowings and rollings; the weeds being afterwards carefully removed. In this way there may also be a considerable saving of expence, by lessening the number of ploughings. In such soils there can seldom be any danger of their being made too fine by operations of this nature, as the seed furrow, when given sufficiently deep, constantly leaves the land lumpy and irregular enough for the purposes of covering the grain, and protecting the young plants during the severity of the winter season. The benefits of affording as high a degree of pulverisation, or fineness as possible to the land, in the manage-

ment of this process has been fully shewn by the results of well conducted experiments. The produce of a field of barley and broad clover, one half of which had been prepared in the most perfect mode of fallowing, and the other half in the common method, on being harvested and kept separate, was in the following proportions, that which had been conducted in the latter way only affording twenty-four bushels to the acre, while the former yielded thirty-one, and the grain considerably better in quality. There was also an equal superiority in the clover crop, the succeeding year. That on the most perfectly prepared part being heavier by nearly half a ton on the acre. In addition to this, it cannot have escaped observation, that in large fields of wheat, where from accident or other causes, some portions of them have received more frequent ploughings than others; that in these parts, the crops generally appear for a great length of time, more perfect and promising than on the other parts.

In cases where manure is necessary to be applied to land after it has been prepared by the process of summer fallowing, it should be done according to the nature of the manure, and the circumstances of land, in respect to richness and the state of its tillage. Lime or Marle are generally laid on with the greatest benefit during the summer months, as about the middle of July or beginning of August; in which cases it should be spread out, as equally as possible over the land, and ploughed in with a very slight furrow, so as only just to mix and incorporate it with the mould, as by this means, where farm-yard manure is applied at the time the seed furrow is given, the calcareous and vegetable manures, by being thus more uniformly blended with the soil, as well as by their more extensive operation on each other, afford more abundant and regular supplies of nourishment to the crops during the first stages of their growth, and a degree of heat may be generated highly favorable to such states of vegetation.

In some cases of land after fallowing, the application of manure may however be wholly unnecessary, as from the great destruction of weeds, such improvement may have been given as to endanger the first crop by rendering it too luxuriant, and consequently liable to be lodged before it becomes ripe, if manure be applied the same season. Very strong crops of grain, have indeed been frequently produced on fallowed lands, without the smallest quantity of manure having been put upon them. In such instances it will be more economical and advantageous to make use of the dung with a view to the second crop, and not that which immediately follows the fallow.

Though the advantages that have been stated to arise from the perfect pulverisation, aëration, and cleanness occasioned

by summer fallowing in those soils, where it has been found to be occasionally requisite, can seldom be so fully obtained by other methods of cultivation; yet as that method is constantly attended with an heavy expence to the Farmer, and as many of the benefits that are produced by it, may be effected by the repeated partial fallowings that must occur in the hoe-culture of different sorts of crops, it should be constantly the aim of the cultivator, where the climate will admit of it, to lessen the necessity of summer fallowing, even on the wet clayey, as well as the light kinds of soil, by the judicious interposition of such sorts of close, thick, green crops, as can be grown and cultivated on them under the hoe system. This is still more necessary on account of the loss that must be sustained from the land often remaining such a great length of time totally unproductive, where the fallowing process is going on. It cannot, indeed, be disputed, but that the practice of summer fallowing, may be greatly lessened in many districts by the proper substituting of green fallows, or what are termed fallow crops, such as beans, peas, cabbages, tares, and rape, for the heavier sorts of land; and buck wheat, potatoes, and turnips, for such as are of the lighter kind. It is likewise maintained as a fact, that where large and luxuriant crops of these preparatory kinds are grown, those by which they are succeeded the following season, are generally still larger. This amelioration or increase of fertility, has been attributed to different causes: as the prevention of evaporation from the soil, by the shade produced by such large crops; the putrefaction of various vegetable matters, which may be more abundant after such large crops, taking place more completely and more effectually under such circumstances; and lastly, to the repeated pulverisation and aëration that is produced by the different hoeings.

But in whatever manner this effect may be produced, as it is constantly found, that land is in a better condition, and when turned up, in a more friable and mellow state after such crops as are large, than those that are poor and light; it is of course evident, that if ground can be covered with such smothering crops of the fallow kind, or those that will admit of being well worked by means of the plough or hoe, so as to keep it clean and free from the growth of useless plants, it may be more beneficial to the farmer, not only for the sake of the immediate crop, but also on account of the increase of manure produced by such means, and the advantageous condition of the land, for the reception of such crops as may be afterwards cultivated upon it. In these different views, as well as those that have been already mentioned, the introduction of green crops of some sort or other, should probably be more frequently attempted on all description of soils; and it would

seem probable that on the stiff and heavy kinds of soil, from its having been found that in many well cultivated districts, by the growing of proper leguminous crops in drills or rows, so as to admit of the ground between their being frequently stirred, either by means of the plough or hoe, such kinds of land, after they have been once well cleared by a summer fallow, may be kept perfectly clean, and in suitable tilth for the production of good grain crops, they may be much more generally had recourse to than has commonly been the case: but on such sorts of land, great attention is necessary to introduce such kinds of green crops as are adapted to them, and thus, as little injury as possible, be done by the treading of animals, in feeding them upon or taking them from the ground. But as neither the full effects of pulverisation or aëration, nor the complete destruction of root weeds, can, in some cases, be so perfectly obtained, by the cultivation of fallow crops, as by making summer fallows, it may be advantageous to have recourse to them occasionally, with these intentions, on the heavy and more wet sorts of land, as well as those that have been injured, by improper methods of cropping.

H. N.

ON IMPLEMENTS OF HUSBANDRY.

(Continued from page 103.)

THE land should be once ploughed over before this instrument be used. If it has lain a summer fallow, the usual way is to work it twice over with the extirpator, about two inches deep at the first, and about four inches deep and crosswise, at the second time, which, with running a harrow once over, will not only effectually destroy all the weeds, but also render it very fine and ready for the drill or sowing. Lands being ploughed in autumn, and intended for spring crops, are by this instrument prepared for seed, better than by any other method ever tried in this country, it will work in all lands, and may be handled by any person that knows how to manage a plough. It will easily plough one acre per hour, and not in the least distress the horses. A farmer assured me, that he would with it and three horses, work up sixty acres a week; and that a person having the extirpator, may with only three horses, farm as much land as without it would require six horses. It is not customary in this part of the country to work oxen, but I am convinced it will answer the same purposes, where oxen are used. It is advisable to work all lands that are overrun with weeds twice over; some lands may possibly require three times dressing; some time should elapse for the weeds that are cut, to die, before it is ploughed a second time. It is now adopted by most farmers in this neigh-

bourhood; and its great utility will be attested by every person that has used it. Many, whose prejudice against every novelty, induced them at first to ridicule the idea, are now as warm in praising it, and acknowledge it to be the greatest improvement in agriculture they ever witnessed.

The above account of this most promising tool, is given in the words of the Rev. Mr. Lewis, of Thorndon, to whom the public is much indebted for the information. It ought to be remembered to the honor of the British Clergy, that many amongst them have taken great pains to acquire, both a scientific and practical knowledge of agriculture; a most laudable and appropriate employment of their leisure hours. A plate of this instrument is given in Mr. Young's Suffolk, whither, the reader is referred for full satisfaction; but an idea may be caught from the following particulars represented in the plate.

The tines and shares are fixed in an oblong wooden frame.

The shares eight inches broad, and nine inches long, fixed to stalks rising ten inches, distance between them eleven inches.

The hind ledge six feet long, four inches square.

The fore ledge, five and an half feet long, four inches square, distance of the ledges twelve inches. The beam seven feet long; its elevation three feet three inches. Two handles.

The instrument fixed to the wheels, &c. of a common plough, and made to go shallow or deep, in the same manner.

Harrows.—In some parts of Essex they draw their harrows upon a frame with wheels; the harrow being moveable higher or lower, as may be desired. They are the invention of Mr. Knight, Farmer, of Great Barfield, Essex; who in consequence received from the Society of Arts a premium of fifteen guineas.

The united harrow and roller, is the late invention of Mr. Benjamin Young, of the Isle of Wight, Farmer; the price of the implement about fifteen or twenty guineas. The report of its utility is very good in the island, where, it has with two horses, rolled and harrowed in twelve acres of turnip seed in eight hours; going only once over the land, but performing the work excellently, and making the saving of a man and horse.

Rollers.—In Kent, the common rolls nine feet long, and from fourteen to twenty inches diameter, cost from three to ten pounds; for their stiff lands, they use stone rolls of twelve or fourteen pounds price. In Staffordshire, large, heavy cast iron rollers, from one to two tons weight; also a common roller, constructed of two pieces instead of one, cut through, as it were, and hung with gudgeons in the middle, the advantage of which is, that in turning it is less liable to root up the

corn, and may be formed of two short pieces instead of one longer.

Four-rowed, duck-footed Drag.—Mr. Graburn, of Barton, in Lincolnshire, has for four years past tried it with success, dragging in barley and oats. After ploughing the turnip-fed land once, instead of a second earth, scuffled the seed in with Cook's scufflers, upon ninety acres, and the crop as good as any. One man and three horses did eight acres a day, a mile from home; which strength would have done but one acre, in ploughing and harrowing; but he thinks the drags much better, and has dragged-in 150 acres, with his four-rowed duck-footed drag, sown with seeds, and the land as clean under them as his neighbour's, who put in with ploughing. This year, he has tried it with turnips, on sixteen acres ploughed twice, and worked with drags, one in winter, and one in spring. Three of the lands were managed with the plough, and had extra earths; the turnips dragged, were better than where ploughed, and he has determined in future to follow this method.

Drill Roller.—This tool, invented in Norfolk, gains ground in Suffolk. Its object is to save the expence of dibbling, by making (with cast iron rings which surround the roller) little channels, four inches and an half asunder, across a clover-ley after ploughing; the seed wheat is then sown broad-cast and covered by a bush harrow. For light soils that require pressing it is a very good implement, but inferior to dibbling. It is used to pulverize fallows on stiff lands in a dry season, in which it is incomparably effective, more than any spiky roller.

Next to the above implement may be properly introduced, another of similar intent, the Kentish striking plough, which is generally employed in that county for striking out seed furrows or channels ten inches and an half apart. Team, two horses at length, and two men, turning alternately to right and left as with the turnwrest plough. To draw the seams equidistant and parallel, the inside wheel is kept in the outside furrow; the seams being made three or four inches deep. Day's work three acres.

Drill ploughs, are made and used in various parts of the kingdom; they shed and cover the seed which is completed by rolling. The common drill barrow for sowing a single row at a time, is adapted to all grains or seeds. A machine of this kind on a simple construction, that would at once deliver with accuracy, into a number of drills at the required distance, is perhaps, still to be sought. The drill machine of Mr. Westward, of Deal, price 14*l.* 10*s.* for setting in seven rows at a time, each seven inches apart, and any required quan-

tity per acre of wheat, barley, oats, peas, tares, &c. is recommended as the best extant, by Mr. Boys, of Kent; our chief drilling county. This plough is drawn by two horses abreast in a double pair of shafts, is very simple in construction, and not liable to get out of order.

Horse-hoe. The account of an expanding one for all breadths, is to be found in Mr. Amos's Treatise on the drill husbandry; this has proved in Lincolnshire, to be a most useful and effective instrument.

Chaff cutter, Cooks; a man and boy cut with it 100 quarters a week. This implement fixed to a large wheel, turned by a galloway or ass, cuts 50 quarters a day. Nailors cuts 3 qrs. an hour with two men, price 10*l.* 10*s.* To these may be added, Lester's very ingenious and simple chaff cutter, not only equal, but superior to any other hitherto invented, as it does equally as much work as any other machine, and the chaff is cut so perfectly and clean, as not to need sifting.

Sward Dresser, useful for meadows and pastures: it includes a scarificator with a bush of thorns, and cuts to any depth; drawn by two horses, carrying the breadth of five feet, in use at Brotherthoft, Lincolnshire.

A hay cutter in the form of a spade, straight and sharp at the point, and upon both sides, which performs the work with much more ease and expedition than the common hay knife; has been introduced into practice by Mr. Ecclestone, of Yorkshire.

Wheat stubble rakes used in Kent, of oak, ten feet long, and very heavy with iron teeth, fourteen inches in length and five apart, beam five inches by four, drawn by two horses. Price 2*l.* 2*s.*

Implements and Appendages to a hop ground. Every hop plantation of four or five acres, requires an oast about sixteen feet square, which, built substantially with the requisite stowage room, costs from 150*l.* to 200*l.* This is furnished with a dozen picking baskets, at 5*s.* 6*d.* each.—A good scale beam with scales and weights 5*l.*—A Shim made with a frame like a wheel barrow, 2*l.* 2*s.*—A harrow drawn by one horse, with a small wheel in front to go round at the ends of the plantation, with a pair of handles to be held by the men who follows, in order to keep it from bruising the binds, 1*l.* 15*s.*—A large iron peeler to make holes in the land for the poles, 6*s.* or 7*s.*—A hop-dog to wrench up the poles, &c. 5*s.*

Newly invented hand-hoes of Mr. Mark Duckett, jun. for doing more work, and at less expence than with common ones, 1*l.* 10*s.*

A vast variety of harrows has been recommended within the last twenty or thirty years, many of them improving considerably upon the ancient form. The nature of the land to

be tilled, will in general direct as to the size and weight of the harrows. The prime considerations are, that the tines stand not straight, but obliquely pointing forward, or as they call it in the north, raked, that they all incline one way, and that they intersect and cross each other. This will completely do away the objection which Tull made to the blunt and straight tines of the harrows and drags of his day, which did but collect the clods to form perpetual obstructions.

Rollers intended to do great execution, are generally made to cover too great an extent of ground, by which in fact, their pressure is diminished by being received and supported from too many points; the weight to be effective, should lie in a narrow compass. Perhaps, the old fashioned octagonal rollers were more effectual than the plain circular ones in crushing clods, but upon tenacious soils, a fluted or a spiky roller should ever be at hand.

On wheel carriages. It ought to be remembered, that from symmetry and due proportion, (the materials being good,) result greater strength and durability, than from mere bulk and weight, which have an increased tendency towards their own destruction. The western or Berkshire waggon, wider than common, with the lock-holes closed up, is beyond all comparison, the handsomest, the most capacious, the lightest, and most durable in England, price 25*l*. On a large farm, where single horse carts are not in use, a broad wheeled double waggon is very convenient, as are also light broad-wheeled dung carts. The Kentish hutches, or large close bodied carts, calculated for carrying corn, coals, or sand, may be very suitable in many situations. A small cart to be drawn either by hand, or by an ass or galloway, is extremely convenient for light jobs about the premises or in the neighbourhood: in such an one, much dung may be collected at leisure times.

Of the great saving to be made by one horse carts there can be no doubt, since it has been experimentally proved, more weight may be drawn by six horses in so many carts, than by eight in a large waggon, and one man may manage two carts in the country. There are some peculiar inconveniences attending upon this plan, which are sufficiently obvious; and notwithstanding, it has been for years past so warmly recommended, it never has, nor probably ever will be, relished by the generality of Farmers.

OBSERVATIONS ON THE GRAND JUNCTION CANAL.

(Continued from p. 138.)

THE towns near the line from Uxbridge to Wendover, as well as the numerous corn and paper mills in the same direction, have already felt some convenience from the

canal; and, in a few years, the principal part of their carriage may be expected to be executed by it; though, only a few months ago, much neglect or prejudice appeared to be shewn to this kind of conveyance.

It is in those districts only where canals have been for some years established, that their utility is fairly and completely acknowledged; for in Lancashire, Cheshire, Staffordshire, or Warwickshire, a frost of two or three weeks continuance is more regretted by its shutting up their canals, than on many other accounts.

But if the corn millers near Uxbridge have slighted this accommodation, the copper work in that vicinity has experienced its use.

The great rock of flint and chalk, near this part of the line, deserves noticing. The former being an article of prime necessity to the potteries; and the latter situated very conveniently for converting into lime or whiting, for the use of the metropolis.

The town of Rickmansworth, being farther from London, and more out of the course of the public roads, will experience more advantages than Uxbridge, and become a market of greater consequence than it has yet been.

The first branch proceeding northward, that has at all been publicly mentioned, was one to Chesham, but relinquished, from not being deemed of sufficient consequence. The time may come when the utility of collateral branches will be so completely acknowledged as to resume this and others, which it would now be deemed ridiculous to even hint at. But the next branch, that to

WATFORD AND ST. ALBAN'S,

Is certainly of much greater moment. Here, in addition to those conveniences that are in common to all countries, the bringing both cheaper and more commodiously coke for their great maltings, must be mentioned; as well as carrying their malt and grain to London. St. Alban's will, no doubt, become the point from which a great and rich tract of country to the east will get supplied with coals and north country goods. Yet, from the circuitous route, compared with the direct road to London, it may never do so great a part of the general correspondence, as will be the case from many other places.

This branch, as well as that last mentioned, will bring water into the lower levels.

The Aldenham Reservoir near this branch, is very properly about to be enlarged and perfectly secured. This is a great object, enabling the Company to return for the use of the mills, in dry seasons, whatever water they may take from their streams. The town of Watford on this line will become

a point of considerable consequence, whence the populous vicinity of Stanmore, Edgware, &c. will naturally look for many of the conveniences of life, and the market, trade and population of the town itself cannot fail to increase.

Several wharfs along the main line have already been established, and those at Hendon-bridge, King's Langley, &c. have done a considerable share of business, but particularly that at Two Waters. The large and commodious timber-yard erected here, shews plainly the idea its spirited proprietors has of the convenience of this spot, and the probability of the great quantity of business that promises to be done in that line.

The neighbouring town of Hemel Hempstead might easily have a branch made to it, if ever thought worth the expence.

Berkhamstead, being situate so completely on the line, will, perhaps, be as much benefited as any other place. The immediate situation of some corn mills hereon, and their absolute connexion with the canal, will probably soon teach others, if possible, to get the same advantage; and point out to millers that having a canal from, and into which they can load by a crane, is one of the principal things to be desired, rather than dreaded. As a canal must always keep a sufficient depth of water, it appears that the mill is much more likely to rob the canal, than that the canal should rob the mill. The canal is also here made very ornamental.

Having ascended nearly 400 feet from the level of the Thames, we arrive a few miles north of this town at the

SUMMIT LEVEL.

And by about three miles of deep cutting, some of which exceeds 30 feet, the canal is made to divide that chain of high ground which crosses several counties from east to west; and which probably deterred the late ingenious Mr. Brindley from thinking of conducting a water communication with London, by any route more to the eastward than by the course of the Charwell, and then by the Thames: nor perhaps but few ever imagined it could have at all been accomplished without a tunnel. The inconveniences of these are so well known, that it is matter of triumph a tunnel has been avoided, although the expence can have been but little lessened by the method adopted.

The exertions to secure these great banks, it is hoped, will prove successful; but no opportunity ought to be omitted of lessening the probability of their slipping at the breaking of frosts, or being washed down by heavy rains, in removing and easing the most dangerous parts.

The branch to Wendover is on the same level with the Summit, and is doubly advantageous on account of its trade and water. The great *spring* here must have afforded a prodigious quantity of water indeed, being almost the only re-

source the canal has yet had during the late dry seasons, and also when the leaky state of many of the lower levels called for more than an ordinary supply from the Summit. Leaky places have been found on the Summit itself, which it is hoped are now carefully stopped.

The lately published report speaks of other reservoirs (besides the great new reservoir now nearly finished and supplied by copious springs, with the immense fire engine to raise 30 or more locks of water per diem into the summit), to be made ~~in~~ or on the gade. But as the very existence of the canal, at least its utility, depends on ~~an ample~~ supply of water here, and as its enemies are magnifying every accidental deficiency, a few observations, it is hoped will be excused, even if from an imperfect knowledge of the country, they should, in some instances, be found a little incorrect.

This chain of hills as before observed, stretches nearly from east to west, and that the canal crosses it where it is lowest: also that although from the form and nature of the ground, it is in general but ill adapted for making large reservoirs and sufficiently water-tight; yet it is very probable some eligible spots, though only small ones, may on a careful examination be found. Is it not possible to skirt these hills to the east and west both on the north and south sides, and thereby secure all the water the earth naturally supplies? The rapid rise of the ground to the west on the south side does not promise so well as that to the east of the south side; but to the east on the north side of this range, a catch-drain seems capable of being carried for several miles, and to effectually secure a very great supply indeed. But what is the valley between the canal and Tring, as to its eligibility for a reservoir? Is there no spring or stream to the south or west of Wendover on a level sufficiently high to be conducted into the summit?

In few situations will the reciprocal exchange of commodities be more sensibly perceived than at Wendover, and along that branch. They will here exchange their beech and other underwood for a more durable substitute, the Staffordshire coals. No country can want manure more than this: nay, from elevated spots above the canal, heaps of London manure in almost every form have already been seen for miles together. Hay, clover, and grain, in increasing quantities for the London market are the natural consequence.

The branch to the populous town of Aylesbury has been proposed to be changed for a rail-way, as it would have drawn water. This seems very judicious, securing as great advantages to that town and the country beyond it, as the nature of things will permit. The point where this rail road commences cannot fail becoming of considerable importance.

From the sterile nature of these hills, the making any of

the above-mentioned catch-drains navigable, would operate in as great a degree to the advantage of such districts as the branch to Wendover does. That on the south side towards the east at the point where it would cross the road from Leighton to London, must of course become a wharf of consequence, and the further eastward it is carried, the more water would be caught, and its utility as a feeder, in proportion increased. That on the north side to the east where it crosses the same road, would become a point of still greater importance; but when extended to the great road between Hockliffe and Dunstable, will answer all the purposes of the once projected line to the bottom of Chalk Hill, and yet bring water to the summit. An advantage superior to any little circuitous route as to all communication with the north, especially as this tract for every object connected with the metropolis would, in as great proportion, be shortened.

Most proprietors may say, how can any one suppose the business of these branches will ever answer the expence? That has never been asserted; but if plenty of water is not secured on the summit, where is the use of the canal? The disappointment of the two last summers to the commercial world in general has much hurt the credit of the concern. Nor can carriers be expected to sink great capitals in vessels, warehouses, &c. if they are every summer to experience three or four months of entire interruption; and even to risk finding their vessels frost-bound the instant the canal has recovered water sufficient to swim a loaded boat, from the long time it requires to fill an exhausted canal with small resources. If, although the business promised to be done by these branches appears trifling, yet if they effectually secure plenty of water without the expence of raising it, and the agriculture of such large districts of very poor land is much improved at the same time, the mere pointing out this mode of supply, it may be expected will be excused even by those, that will not allow its propriety.

As these hills also so completely abound with chalk, and its use as a manure is daily becoming more generally acknowledged, may not this become one of the greatest articles of carriage, and that to a very considerable distance? As a substitute for lime, or a change instead of it for once, may have many advantages. So the giving even the possibility of procuring a dressing of peat, lime, or marle, or any thing besides their own chalk would be a benefit to these hills beyond calculation, and which nothing but a cheap water carriage seems capable of affording them. The expence of chalk and peat principally consists in the carriage, as where they exist, it is often in such quantities as to be of little value to those spots, though so desirable at a distance.

The enlarging the reservoir near Aston Clinton, for the use of the mills below, (the mere improving the construction of some water wheels, will enable many mills to execute the same business with much less water,) or an engine to raise the waters from it, may be very proper. For though fire engines are a continual expence, and subject to many accidents, it is not intended to deprecate this mode of supply. There appears no great difficulty in finding a considerable supply not far from the summit towards Berkhamstead, and likewise below Marsworth to the north, where the ground seems better adapted for reservoirs: but in both these, it would require considerable lifting.

Many suppose a narrow set of locks would be very great advantage both in expediting business and saving water: and an ingenious trader has proposed a few shallow locks, not more than three or four feet deep near the summit, for the same purpose. But perhaps the period may arrive when the mere increase of business, will call for some improvement of this kind. In every point of view an ample supply of water is the first requisite.

Leighton Buzzard is the first town of any consequence on the line north of the summit, and though it has long enjoyed a large market, it must still be much benefitted by this conveyance. This place had till now about 25 miles of land carriage for coal of any kind; and is situated out of the tract of the more public roads.

The soil of the country now becomes various, sometimes stiff clay, and at others very sandy. The distance is now too great for London manure, by land, or lime out of Northamptonshire, but the canal will bring both, and from the length of the conveyance is to this tract of still increasing importance.

The *Fuller's Earth* that exists in large quantities near Fenny Stratford, deserve noticing, as the quantity that may be used is likely to be multiplied many times from the facility given to its distribution.

Fenny Stratford where the canal crosses the great road, must rapidly increase in importance, both as a depot in case of accident, or stoppage in either direction, or from its convenient situation in supplying a large district of country.

(To be Continued.)

For the Agricultural Magazine.

ON THE CULTIVATION OF ARABLE LAND.

IN explaining the methods of management that are necessary in the cultivation of arable lands, in order to afford a suitable state of soil and nourishment for the growth of grain

or other crops, it will be proper to consider them as relating to grounds that have not yet been brought under the plough, and such as have been already in the state of tillage.

Removing obstructions to tillage.—In the first there are frequently various operations to be performed, such as the removing of stones, the eradicating of wood, both of the tree and shrub kind, the destruction of different sorts of plants of the aquatic and other denominations, and the removal of such degrees of wetness as may be injurious, before the business of ploughing or loosening the mould of the soil can be properly carried on. The stones that are an obstruction in this view, are principally either such as are met with in a loose state in the ground on its being ploughed, or such as are fixed in the soil and incapable of being removed without much labour and difficulty. Some of these last are often of such a size as to present themselves upon the surface, and cause much land to be lost, by their not permitting the plough to come near them. Those which are concealed below the surface, are however, the most detrimental; as the implements are frequently destroyed, and much inconvenience experienced from them before they can be perceived by the ploughman, though he may be perfectly attentive to the circumstance.

In such soils as contain no concealed stones of the rocky kind, as is the case in most of the alluvial and deep ones, if any inconvenience be sustained by the small ones, that appear on the surface after harrowing, as may be the case at the time of their being sown with artificial grasses or laid down to permanent grass from the obstruction that may be given to the scythe, in such instances they may be picked off by the hand before rolling; or forcing them into the soil, by heavy rolling alone, may occasionally be sufficient. When the former practice is adopted, they should not, however, as is the custom in many districts, be collected into heaps, or laid all along the furrows, as in these ways they are afterwards liable to afford much obstruction, or to become again dispersed over the land. They ought always to be completely removed: the best season for doing which, is, when the land is in summer tillage; as under such circumstances the business can be performed with the greatest convenience and in the most effectual manner. In lands that are of the more wet kinds, they may however be collected into heaps of rather a large size, in order to be taken away afterwards during a dry season. The business of picking the stones is mostly performed by women and children, and the lands are cleaned in this way with much greater expedition than can easily be supposed, though an instance or two has been mentioned in which injury was supposed to have been sustained by the removal of

the small stones from the ground from the great evaporation of moisture that must necessarily take place, and the want of heat and shelter for the crops during the early stages of their growth, it is probable that much less inconvenience will be suffered in this way than from the obstruction constantly afforded by the stones in the tillage of the land, and the loss caused by the great extent of surface which they occupy in many cases where they are numerous.

Where the stones are fast in the ground, of a large size, and appear above the surface of the land, the best practice is to dig them completely out of the earth, after they have been blown to pieces by means of gun-powder; but if they be small, it will be unnecessary to blast them, as they may be raised after being dug round without that expense, by splitting them with iron wedges, or breaking them with heavy hammers, and then conveying them off the land in some kind of strong low carriage, on which they may be easily lifted by means of an instrument of the following description: * It consists of three legs made of any sort of hard wood, each about four inches in thickness, six inches in breadth, and fourteen feet in length; their thinnest sides being placed inward to give them greater strength. Their feet when placed on the ground form an equilateral triangle, and their three tops being fixed together by an iron bolt that passes through each of them; two of the legs are fastened to each by a windlass and three cross bars. It has two pulleys with an iron hook, two inches in circumference attached to each, and one or more iron chains to pass round the stone while on the ground below its greatest diameter, or where it begins to become narrow; this consists of rounded links about three inches long, and of the thickness of a man's little finger with a hook at one end, that may be put into any of the links towards the other end, in order that it may embrace the stone exactly, and be of the same circumference, when the stone touches the earth. Short chains of the same kind, the hooks of which are fixed into the links of the surrounding chain, are to be attached all round the stone, with their corresponding links fixed on the hook of the lower pulley. The whole of the rope must be of the same thickness with the two great hooks, two inches in circumference.

The machine being thus prepared, two men, by turning the handles of the windless round, and the assistance of the carter with a lever, force the stone up, and hold it at the proper height to be loaded by backing the carriage under it.

The method of sinking large pits close to the stones for concealing them in, is an expedient that ought but seldom to be

* See Agricultural Report of Perthshire.

adopted, on account of the danger that attends it, and the total loss of the stone. But where the stones are principally concealed below the surface it will be necessary to discover their situation, either by going over the land with some sort of sharp instrument that can be readily thrust down into the ground, or to mark their situations during the time of ploughing, and afterwards to remove them. In some cases, as where the stones are extremely numerous, and the price of labour cheap, it may be a more advantageous and economical method to prepare the land by means of the spade than the plough.

In all cases, land should be as much as possible cleared from such stones as retard or prevent the operation of the plough, before the business of tillage be undertaken; as without due attention in this respect, great loss may be sustained, by the breaking of implements, and the great delay that must take place in the work.

Besides, in many situations and circumstances, there may be great inducements to have this sort of work performed, as where hollow or underdraining becomes necessary; the rounder sorts of stones may be beneficially employed in filling them, while those that are of a larger and more flat form, may be of use in the construction of offices or other buildings, and sometimes even for the purpose of fences. As this work is frequently attended with an heavy expence, it may be proper, where there are no leases, or they are of short duration, to have it undertaken jointly between the land proprietor and the farmer; the former being at the expence of blasting the stones; and the latter, at that of their removal from the ground.

In the clearing of lands from wood, different methods must be pursued according to the nature of the wood with which they are covered. Where there are large trees of the timber kind, they should be completely grubbed up at a proper season of the year; care be taken that the roots be as much as possible removed. In eradicating such trees as have their roots penetrating downwards to some depth, as the oak, it may frequently be unnecessary, after the earth has been well removed from about them, to cut more than a few of the strongest lateral roots, the rest giving way by pulling at the top of the tree by means of a rope. But in such as have their roots shooting laterally near to the surface of the ground, as the elm, the roots must be almost wholly removed before they can be got up, and the business of ploughing be properly carried on. In cases of this sort, trenching by means of the spade, and forcing the roots up by a pick-axe, is recommended by some as the most effectual method, as in this way the roots are not merely removed, but the land put into the most

convenient form for future cultivation. Besides, when such portions of brushwood as may have been collected upon the surface of the land, have been cut at the same time and consumed with the roots, some advantage may be gained in the way of manure by spreading the ashes over the ground, and in some measure, repay the additional expence that may have been incurred by the trenching. But in most cases, especially where the price of labour is high, the business may be well enough accomplished by a strong plough with a suitable strength of team. After the trees, and as many of the roots of these shrubby plants as possible, have been removed during the time of the first ploughing up, the land may be sown with some sort of crop to which it may be the best adapted, and after that has been taken off, be more completely cleared by repeated ploughings and harrowings, both lengthways and across the ridges, until the whole are extirpated. Or when there is time, this may be done before any crop is put into the soil, which in many cases is a method to be preferred, as a good or full crop of any kind can seldom be expected, till the ground has been perfectly freed from the roots of such trees and plants, on account of their more increased tendency under such circumstances to shoot up and vegetate afresh, and thereby injure it by the great space which they occupy, and the shade they produce, or where their roots decay in the soil, by rendering it too light and open for the growth of most sorts of crops.

As different sorts of plants prefer different soils—the broom and bramble kind, being found to grow with the greatest luxuriance, on such as are of the more dry and sandy or gravelly qualities; the furze on such as are dry, but which approach the nature of loam or clay; the thorn kinds, on those that are of a more mellow and less adhesive description; and the low willows, on such as possess considerable degrees of moisture. It may be possible in many instances, to derive great advantages in the removal of such obstructions to cultivation, by applying such manures or other substances, as may produce changes and alterations in the texture or general nature of the soils, and thus lessen their tendency to the production of such plants. In this view, the application of clayey marle or composts, with peat, earth, and lime, or loamy and clayey earths and lime, farm yard manure or composts, made with it and mould, night soil with good vegetable earth, sand, and various other materials, according to the circumstances of the soil, the nature of the plants, and the convenience of the substances in respect to their application, may be proper. The removal of superficial moisture may also be useful in the same way, in many cases.

In cases where such sorts of shrubs have become of considerable size, the general method of proceeding is to cut them down as close as possible to the surface of the ground, and afterwards to dig round them, and grub them up in the manner that the larger trees are cleared. With furze, it is sometimes customary to set fire to them, in order to uncover their stems before any attempt is made to grub them up; but this is a practice that ought to be as much as possible avoided, from the danger that may attend it, and the loss of the furze.

As it has been found from experience, that such lands as have been attempted to be cleared from brushy plants of this kind, especially those of broom and furze, are extremely liable, from the roots and seeds that may be left in the soil, to have them come up again in great abundance after they have been laid down to grass; it should be a practice, to keep lands that are much disposed to their productions in the state of tillage, for such a length of time as may be fully sufficient by the various means of cultivation, and the application and blending of lime and other suitable manures with them, to have them as completely removed as possible; and that when they are restored to the state of grass, to have them pastured as much as can be conveniently done with sheep. It has, indeed, been observed by Mr. Headrick in his communications to the Board of Agriculture, that if whins, or shrubs of any kind, are once grubbed up in the way that has been described, sheep being then admitted to pasture, would prevent them from ever growing again from the small roots left in the ground. But still more would this experiment he conceives be likely to prove successful, if the ground were completely fallowed, and every root that appeared removed. The land being then well limed and manured, might be subjected to a course of cropping, and be sown down with grass seeds without a crop. As soon as the grass affords a safe bite, he would admit sheep, and not wait for a crop of hay. It is presumed that sheep would destroy the tender shoot of every shrub as fast as it rose, and keep the ground ever after clear.

If however this practice should not be sufficient to prevent the shrubs from sending up fresh shoots, the best method would be to have again immediate recourse to the plough, and such other means as have been recommended above, as by delay, the plants may become too strong to be turned under by the plough.

Heath, which is a sort of plant that for the most part infests those soils that are of a moory nature, and in which there is but a small proportion of vegetable matter, on account of there being few leaves or other vegetable products, except the heath itself, to be converted into mould; the recrements of this plant are not found to afford improvements to the soil on

which it grows, as is experienced from the decay of many more saccharine, mucilaginous, and juicy plants. Hence, it probably is, that the heathy soils are mostly so poor and unfriendly to the growth of useful crops, whether of the grain, leguminous, or grass kinds. In bringing this sort of land into the state of tillage, as it has been found from repeated trials, that where the heath is turned down without being removed or completely destroyed, it keeps the furrow slices from coming into intimate contact with each other, so as that by confining and retaining a due degree of moisture, the decomposition and decay of the heath may be quickly effected, and the soil of course, in too open and loose a state for the growth of almost any crop. It should be cut as close to the surface of the ground as it can be conveniently done; or what is probably a better practice, removed, by paring off a very thin slice of the surface ground with it, and then burnt. In the dry spring months, it is indeed capable in many cases where it grows high and close, of being burned without the labour and expence of either of those operations; but in all cases where fire is employed, as the staple of soils of this kind is seldom deep, care should be taken that the combustion be not carried to too great a height, so as to be injurious by consuming the small portion of vegetable material that may be present. The operation of cutting heath may be most conveniently performed, by an implement of the scythe kind, only shorter and stronger.

The heath having been removed in some of these ways, lime in its most active state, is to be applied in large proportions, either over the whole of the surface, before the ground is ploughed, or upon the soil when turned up. The former method is however to be preferred, as coming more intimately in contact with the vegetable matters; where it can be procured, Lime should always be put on in large proportions, on first bringing Heathy or moory soils into the state of cultivation, as little savings in this respect in the first instance, may often prove disadvantageous in the end. Mr. Headrick observes, that experience has proved, that the addition of lime to the ashes of the pared surface, operates much more beneficially than if spread in any other manner: and that the larger the quantity, the greater the effect. The chemical effect both in neutralizing the acids found in all these soils, and also in destroying the roots left of the spontaneous growth, depending in some measure on the effect taking place suddenly. It has been known that eight chaldrons an acre laid on at once, have converted a moor into meadow, worth twenty-five shillings an acre; but the same moor under one chaldron per acre per annum for eight years, has not been worth seven shillings and six-pence an acre. The effect of lime on all soils

long in cultivation is he thinks problematical, and does not answer the expence in one case in ten; but in new moorlands the effect is prodigious, and hardly credible: laid on ling mountains without tillage, without paring, or other operation, than merely cutting the ling and spreading the lime, such moors have been changed from one shilling to twenty shillings per acre; but the quantity has been from fifteen to twenty chaldrons per acre. In order that the calcareous matter may be as intimately as possible blended with the particles of the soil, and thereby exert its effects most extensively, it should be applied over the land in the most perfect state of pulverisation, and as equally as it is possible to spread it out. Where the lime is applied with sufficient attention to these circumstances, it generally destroys the heath in a short time. After the lime has been applied, especially where the surface has been pared off and consumed by fire, the ploughing should only be slight, so as to blend it and the ashes with the soil, but not to place them at a great depth below the surface.

Where heathy or moory land has a degree of surface wetness, and is not so much overrun with the plant, as to prevent its being employed as pasture, it may sometimes be brought into cultivation, by merely removing the superabundant moisture by proper drains, burning the heath in the spring months when suitably dry; and afterwards pasturing it closely with sheep, so as to keep it from seeding; in this way it may in time be wholly removed.

When this sort of ground has been broken down and pulverised as much as possible by the operations of ploughing and harrowing, it should always, where not too stiff, be sown with some sort of close, luxuriant green crop, such as turnips, peas, and tares, that may be fed off with sheep, but where it has a sour quality, and is more stiff, clayey, and adhesive, those plants that strike more deeply into the soil, as beans, Swedish turnips, buck-wheat, rye, and oats of the grey kind. In many cases too, rape, peas, clover, and vetches, will succeed in a very beneficial manner. But as the principal intention in most cases of breaking up this sort of land, is that of bringing it in a cheap and expeditious manner to a suitable condition after a grain crop or two, for growing grass; the green crops of whatever description they may be, should be consumed by animals upon the ground, especially where the soil is such as to admit them without injury, where the soil is not wet, stiff, and poachy to admit of this practice. The crops may be drawn or cut, and converted to the feeding of cattle in the house.* It is well observed in Young's Annals, Vol. 20, page 371, that proper cropping is the key stone of the arch, and that

* See an Essay on the advantage of starting crops in our 37th Number.

if it be not attended to with great care, the whole of an improvement may turn out disadvantageous. There is however another method of improving these soils by such crops, which is that of turning them down when in their most succulent states, by the plough. This may be a judicious and useful mode on the drier and more sandy descriptions of these soils, where they may readily undergo putrefaction and decay; but in the more tenacious sort, and where there is a sour disposition that would greatly retard the process, it would seem to be much less beneficial than that of feeding them off by some sort of live stock.

(To be Continued.)

ON REARING TURKIES.

To the Editor of the *Agricultural Magazine*.

SIR,

YOUR Correspondent L. R. of Colshill, in your Magazine for October last, page 206, says, that he frequently loses the greatest part of his Turkeys in rearing them. I wish to mention one thing to him which may be of consequence in this point, and that is, that there is a weed generally about farm houses which is ever fatal to young turkeys who get among it, and that is the *Nettle*; for whenever they are stung by it about the head and neck, the pain it causes, is too violent for this tender animal to support, and consequently it must perish. This may be one reason of the loss he complains of.

Wheaton Aston.

J. D.

ENUMERATION OF PATENTS LATELY ENROLLED.

1803, **R**OBERT WILSON of the parish of St. Saviour, Jan. 20. Southwark, Plasterer; for an apparatus for the purpose of stopping ungovernable horses.

—, 20. Joseph Jacob, of Greek-street, of the parish of St. Ann, Soho, Middlesex, Coach-maker; for a metal box for the axle-trees of wheels, carriages, mills, engines, and other machines.

—, 29. George Matcham, of the city of Bath, Esquire; for a principle or mechanical power for raising great weights, in preventing ships from sinking, in raising ships when sunk, in rendering ships which are disproportioned to shallow-water capable of entering rivers, passing bars, or shoals, or otherwise moving in shallow water; and for a variety of other useful purposes.

—, 29. Edward Stephens, of the city of Dublin, for a furnace, stove, or fire place, which can conveniently be applied to the burning of lime-stone, at the same time that it is used for the heating of all manner of corn-kilns, evaporating-stoves, and drying-houses.

CRITICAL CATALOGUE.

- I. *Proceedings of the Sussex Agricultural Society from its Institution, to 1798 inclusive, together with Engravings of the Prize Cattle for that Year, from Drawings made by actual Admeasurement. 2d. Edition. By Edmund Scott, Miniature Painter, of Brighthelmston.*

THE present work exhibits an account of the transactions of a most respectable Agricultural Society, together with the portraits, said to be very correct, of the prize cattle and sheep of the county; one of the most justly celebrated for the excellence of its live stock. It is dedicated to the President of the Institution, Lord Egremont, a nobleman, eminent for his skill in rural affairs, and general philanthropy. The British Nation has ever ranked first in the science of cattle improvement, or rather, such knowledge, in any regular or systematic view, has been hitherto confined to this country. If our immense consumption, and the late and even present enormous prices of flesh-meat be considered, no wonder need be excited by our most strenuous efforts to increase *the quantity of its growth per acre*, for that is the great object of improvement, quality coming in the second place. To suppose that a considerable number of the most experienced men, in almost every part of a country, shall, through a course of years, bend their united efforts, to improve in any art or science, without success, or that they shall become retrograde in proportion to their industry, is happily to judge contrary to the whole tenor of human experience. Not only cattle science, but rural economics in general, have proceeded *passibus equis*, in the march toward perfection; and if high prices and scarcity are quoted, in contravention of the idea of improvement, it is but fair to retort, in the sense of a well-known writer on the subject, that the old system would actually have starved a population like the present.

For the information of the general reader, we will premise a brief statement of the cattle question as it stands at present; nor ought we to be ashamed to confess our information on a subject which has engaged the attention of the philosophic and enlightened of both ancient and modern times. The general quality of the cattle-flesh of the British Islands has ever been excellent, doubtless from the nutritive properties of the natural herbage of the soil. Our stock has besides had the advantage of gradual amelioration from every foreign source, in the course of many centuries. Yet some races, which seem to have retained their original purity, are equal to any improved by foreign crosses. In the general run, as might be expected, there was much room for improvement. The Midland and some of the Northern counties of England, produced animals of immense bulk, their flesh coarse, with the excrecence, as it may well be termed, of long and heavy limbs. They were necessarily slow in feeding, seldom indeed thoroughly fattened, and at too much cost. On the other hand, some districts were burdened with a mean, diminutive, ill-formed stock, still less productive than the large. The prevalent ideas, however, were, that all merit consists in magnitude of size, to which were added certain vague and unfounded notions, derived from the veterinary writers of antiquity. Somewhat later than the middle of the last

century, the old system of long legs, huge bones, and splatter feet, began to succumb to the improvements of the well-known Robert Bakewell. This shrewd observer discovered that productiveness in weight, depended on regularity of shape, of which long legs and protruding bones were a breach; that roundity of form, or the barrel shape, with small bones, were most conducive to penguification or the taken on of fat; that in animal procreation, *like produces like*; and lastly, in controversion of all precedent, theory, or practice, that the nearest affinity, premising thorough form, was no reasonable objection, in the sexual conjunction of animals. Big with this theory, which is in part true, and precisely so far useful, and fired with all the ardour of discovery, our systematic cattle-breeder sallied forth, and ransacked his whole country, and part of the opposite continent, in order to a selection of animals for his purpose. By crossing and intermixing these, through a long and tedious variety of descents, with the perseverance of a German mathematician, and at an immense expence, he raised varieties of neat cattle, sheep, and pigs, which became highly celebrated throughout every part of Britain, and have remained permanent to the present hour. Determined to leave no class of farming stock untouched, he attempted also an improvement of the breed of horses, in which also he succeeded to a certain degree.

But in the ardour of his zeal, Bakewell overleaped the *certi denique fines*, without which nothing can be permanently right. His positions and corollaries, that, as small bones conduce to fattening, the bones of animals cannot be too small, and that, as fat is the most valuable substance, the carcase cannot be too fat, are not intirely on unison with the stomachs, or the reason of the majority, whose decision, in the case, must be final. In consequence, all the disthley varieties of live stock, have been inferior to our best unaltered breeds, the form of which may be presumed nearer to natures standard, and which will produce lean as well as fat, and fat in full proportion to lean. In truth, public opinion, and the prize decisions have confirmed these sentiments, and if we may rely on the authority of the New Farmers Calendar, in which work we believe, the first systematic attack was made on Bakewell's principles, the chief merit of his varieties consists in their excellence, as *crosses*, for those breeds which are defective in substance, and too slow in taking on fat; in that respect, their utility is indisputable. It is probable, however, that a majority of our graziers adhere to Bakewell's opinions, although the public, and the butchers in the metropolis, are making heavy complaints of the immense daily waste from over fattened meat. In opposition to this system of excessive fattening, Lord Somerville gives annual prizes, in London, for bullocks and sheep, distinguished for abundance of natural flesh, thoroughly, but moderately fattened.

To return to Mr. Scott's plates—the utility of delineations of the form of our varieties of cattle, as the ground of a comparative experience, is unquestionable; and granting the drawings before us to be moderate, they answer perfectly the chief intent, by exhibiting the true character of Suffex neat cattle, and South-down sheep; the latter are very handsomely executed. There are six of the former, and four plates of the latter, with an admeasurement of the exact dimensions of the individual animals.

The introduction is in a style sufficiently lively for the subject; indeed, nothing partaking of the proverbial heaviness of the ox. After defancing technically, from authority, on breeding, giving the particular points, by which, what is really the best stock in the kingdom, may be distinguished from the worst, in respect to the bull and the ram; and detailing certain parts of Sussex practice, the author takes up a very important part of the pretensions of the institution, in the following words: "The applause, perhaps, of an humble, any more than of an uninformed individual, will contribute nothing towards the advancement of the *cause of indigent industry*." But the opportunity which offers itself of bestowing that applause, is a temptation too strong to be resisted. In these few humble sheets, which an uncommon patronage of the great may perhaps make public, and the acknowledged utility of the subject, may possibly make worth preserving; the compiler cannot do otherwise, than record his congratulations to the county of Sussex, on the possession of an institution, of which a prominent object is, the encouragement and reward of industry and good conduct, in those whose industry and good conduct constitute much of, and contribute most to the wealth and prosperity of every country. Philanthropy, the characteristic, more than ever, the peculiar characteristic of Englishmen, never yet selected an object, on which to exercise its liberality, most worthy of, and more in want of it, than the indigent and inoffensive husbandman, to whose daily labours the nation owes its daily bread.

The transactions of the Society are included in 24 pages, giving an account of the premiums bestowed on meritorious labourers, and the prizes allowed to superior stock. In the former, a subject which touches the generous affections; we find four husbandmen, the first of whom had served 57, the second 55, the third 43, and the fourth 40 years! The peculiar appellations in Sussex of cattle and sheep, of different ages, are given in conclusion. It appears that the business of this Society is very judiciously conducted, and Mr. Scott's publication may furnish very good precedents for patriotic country gentlemen, who are about to form a new Society.

II. *Systematisches Handbuch der theoretisch—praktischen Veterinair Wissenschaft* &c. *Systematic Manual of the Veterinary Art, theoretical and practical.* By F. Pilger, Vol. 1 and 2, 8vo. 1048 p. and 476 p. 4 rxd. 4 gr.

THIS is a truly valuable work on veterinary medicine, for the use of economists, farmers, those who have the management of stables, &c.

The first Volume is divided into three sections, the first of which treats of the horse, the sheep, the pig, the dog, the ox, and the cat. The second contains the zootomy and zoophyiology, and the third, the natural regimen of these domestic animals.

The second volume is divided into five sections, treating on the manner of rearing horses, horned cattle; sheep, pigs, and of general pathology, &c.

First section, of horses; 1. Of the manner of rearing horses, and of stables in general. 2. Of places proper for stables. 3. On the management of pastures, and the number of horses they are capable of sup-

porting. 4. Of the plants which horses chuse in preference. The author mentions 135 different kinds. 5. Of the buildings requisite for a breeding establishment, and of their construction. 6. Of the number of persons necessary for attending them. 7. Of the choice of horses. 8. Of the crossing of breeds. 9. Of copulation. On this head the author confines himself to the four following questions: How old should the stallion be? and the mare? how many mares should a stallion be permitted to cover? and to what age is he capable of being employed? 10 and 11. Of the method of treatment of the stallion and mare during coition. 12. Of pregnant mares. 13 and 14. Of foaling. 15. Of the attentions requisite to be paid to the mare and her foal. 16. Of the method of rearing foals till the age of four years. 17. Of the choice of horses for use. 18. Of the manner of taking care of the feet of foals.

Second Section: of horned cattle. 1. Of the choice of bulls and cows for breeding. 2. Of copulation. 3. Of the birth of calves, and the manner of rearing them. 4. Of the castration of calves.

Third Section: Of sheep; of the choice of, and method of rearing them.

Fourth Section: of pigs; of the manner of breeding, and the commerce carried on with them.

Fifth Section: General Pathology. The theory of excitation serves as the basis to the whole system. 1. Of the division of diseases. 2. Of ætiology. 3. Of the causes of diseases. 4. Of nosology, or the actual difference of diseases. 5. Physiologic and pathologic signs. 6. Of pathologic signs in particular. 7. Of the signs that may be collected from various external parts of the body.

Sixth Section: of general Therapeutics. Of the treatment of diseases.

Seventh Section: *Materia medica*; 1. of nourishing and invigorating medicines; 2. of bitter medicines and provocatives; 3. of relaxing medicines; 4. of purgatives and diuretics; 5. of diaphoretics, absorbents and worm medicines; 6. of external medicines. The other practical memoirs will follow in the third volume.

III. *Sammlung von Abhandlungen für Thierärzte und Oekonomen; A collection of Memoirs for Veterinary Practitioners and Economists; translated from the Danish, of E. Viborg. Vol. 3. 336 pages, 8vo. with a plate, 1 rxd.*

THE merit of this collection is established; it only remains for us to state the different pieces of which this volume is composed.

1. An ordinance relative to the epidemic disease which prevailed in the duchies of Sleswick and Holstein; 2. experiments made by M. Viborg, and Dr. Scheele, on the injection of various remedies into the veins of animals; 3. on the effects of several plants, and on the animals of the north, by A. C. Rafn and Viborg; 4. experiments made in the Danish veterinary school, tending to prove that the small-pox is a disease common to man and beasts, by Viborg; 5. trials of inoculation performed on men and animals by the same; 6. trials of purgatives on horses, by Florman. These purgatives were martial vitriol, jalap, mercury, senna, colocynth, common salt, and of which the latter only had a purgative effect; 7. fragment of a letter from professor Abilgaard, to M. Viborg, on the manner of rearing sheep

in Spain; 8. on umbilical and scrotal hernia in horses, with their radical cure, by Viborg; 9. of the prejudicial effects of butter-milk on horses, by the same; 10. of the glanders and other diseases of horses by the same. In the appendix to this volume, is a list of the medicines mentioned in the work.

IV. *Handbuch für deutsche Landwirthe, &c. Manual for German Cultivators, or the Three Kingdoms of Nature explained in a popular manner, by J. E. Löwe. Vol. 1. 320 pages, 8vo. 1rxd. 6 gr..*

THE aim of this manual is to facilitate to the farmer, an acquaintance with the useful part of natural history, and to present information in an order calculated to impress it on his memory. This work certainly contains some useful matter, but it may be perceived that the author has not in every instance, made himself master of the subjects of which he treats, and that he has not consulted with sufficient attention, the authors that have written on natural history. We shall give a brief sketch of the plan he has adopted.

The mineral kingdom is divided into four classes, comprehending the earths, salts, inflammable minerals, and metals. The earths are divided into calcareous, argillaceous, and siliceous; the salts into acids, alkalis and neutral. The inflammable minerals, are amber, naphtha, turf, and sulphur. After treating of the metals, the author describes the different qualities of earths for agriculture, rural labours, &c.

In speaking of the animal kingdom, the author asserts, that the colour of animals has no influence on their strength and health; Camper and Weiss on the contrary, have demonstrated that white animals are less capable of resisting diseases than others. This kingdom is divided into six classes; mammiferous animals; animals that have grinders; beasts of prey; animals that nibble their food; ruminating animals, and those that have teeth like a horse. The birds are divided into 6 classes; amphibious animals into three; fishes into four; insects into 7; worms into 4, &c.

The author flatters himself that he has described the most interesting animals of Germany; his work however, exhibits many vacancies which might have been filled with a little more attention. The succeeding volume will contain the vegetable kingdom.

V. *Sammlung kleiner Abhandlungen aus dem Gebiet der ökonomischen Wissenschaften; A Collection of Memoirs on Rural and Domestic Economy, by L. G. Medicus, Vol. 1. 215 pages, 8vo. 14 gr.*

THIS useful collection consists of eight memoirs. The first treats of the detrimental influence of sheep walks, of rearing sheep, and of agriculture in general; 2. observations on the *trifolium flexuosum* of Jacquin, and its use in agriculture; 3. botanical description of the *pinus cambræ* Linn. 4. description of a wood of beech trees of 425 acres, on the mountains of Odenwald, where the author found beeches of an extraordinary height and magnitude; 5. evaluation of the surface and produce of part of a plantation of acacias, formed at Mannheim, and cut down in the year 1801; 6. instances of trees thrown down and rooted up. These two memoirs, as well as the third, have already appeared in the new *Archives of Forests*. In the 7th memoir, the author treats of the so-called *Aaron's rod*, described by Wildungen

in his *Forester's port-folio* of 1802; and in the 8th of the double envelopes or capsules of the seed of certain kinds of pines. This last is particularly interesting to botanists.

VI. *La Richesse des Cultivateurs; The Farmer's riches; or a Dialogue between Benjamin Fachere and Richard Tressle, on the Culture of Clover, Lutern and Saintfoin; translated from the German; intended as a manual for the Farmers on both shores of the Rhine, 8vo, 2 fr.*

THE incalculable advantages, resulting to agriculture from the formation of artificial meadows, both by employing the land condemned to lie fallow for a whole year by the ancient routine, as well as by the multiplication of the animals which are supplied by these meadows with wholesome and abundant food, have been developed in many excellent works. But none has appeared in a form so well adapted to every class of farmers, as that here announced. The beneficial effects of its publication in the department of the Moselle, induced the editor to print a very great number of copies, in order to extend through the other departments of the Republic, the happy results which the method here pointed out has met with in Germany.

HISTORY.

National Transactions.

GREAT BRITAIN.

THE political horizon has assumed a very different aspect since our last. The resumption of a war establishment and the bustle and activity of naval and military preparation through our ports and the kingdom in general, could not have been resorted to by Ministers upon any trivial or common occasion. Their firmness, vigour, and spirit, together with the promptitude evinced by the country, in preparing to repel any unjust aggression, to resist any unreasonable demand, or to enforce any just proposition, are the surest guarantee for the maintenance of that peace of which every friend to his country would regret the interruption.

His Majesty's Message and the subsequent proceedings of Parliament will more amply detail the causes of these preparations.

Whilst the question of peace or war remains undecided, government does not in the smallest degree relax the activity of its measures for the security of the country. The utmost alertness prevails in our ports and dock-yards, and several eminent officers, it is said, have been appointed to commands.

The principal appointments are stated to be, Admiral Cornwallis to command the Channel fleet, with Lord Gardener, next in command; Lord Keith, to the Plymouth station, to superintend the naval equipments; Sir Sidney Smith, to the command of a Squadron of frigates; Sir James Saumarez is to act at Sheerness; and Lord Nelson, either on the North Sea or Mediterranean station.

The intelligence brought by the Imogene of our still retaining the Cape of Good Hope will no doubt have considerable influence on the negotiations that are on foot, and will probably tend to bring them to a speedier issue. The dispatches ordering that colony to be retained, were landed about four hours previous to its intended evacuation by the British troops, and its consequent surrender to the Dutch.

Major General Stuart, who commanded at Alexandria, has arrived in Lon-

don. The evacuation of that place by the British troops took place as soon as possible after the arrangement in favour of the Beys had been concluded by Lord Elgin. The troops, it is said, have gone to Malta.

We shall now present our usual sketch of the proceedings of the Parliament of the United Kingdom.

HOUSE OF COMMONS.—*Monday Feb. 21.*—Mr. Elliott gave notice, that his honourable friend, Dr. Lawrence, was unable, from ill-health, to make his promised motion respecting Captain D'Anvergne, but that he would make it as soon as his health would permit.

The Secretary at War gave notice that he should, on a future day, call the attention of the House to a publication, entitled "The Army List," which he considered as injurious to the public service.

A petition was presented from the Bristol merchants, praying for aid to improve that harbour.

Tuesday.—Lord Euston rose and moved, that an humble Address be presented to his Majesty, to offer the heartfelt congratulations of this House on the detection and failure of an atrocious and treasonable conspiracy, directed against his Majesty's sacred person and government. To assure his Majesty in our own name, and in that of all the Commons of the United Kingdom of Great Britain and Ireland, of the perfect and invariable attachment of a loyal and grateful people, and of our fixed determination to support and maintain that form of government under which it is our glory and happiness to live, and to transmit it, unchanged and unimpaired to our descendants.

Lord Boyle then rose and seconded the Address, which was agreed to nem. con.

The House having gone into a Committee on the Mutiny Bill, the Secretary at War stated, that he had several amendments to propose, the first was, for checking a very criminal practice, which he lamented to say had been too prevalent in the army, namely, desertion. He meant to propose, that Courts Martial should be deprived of the power of sending deserters abroad to serve the king, but in cases where sentence of death shall be necessary, then his Majesty shall have the power of transporting offenders as felons, thereby commuting the punishment of death into that of transportation for life. His second amendment declared, that any person harbouring a deserter from the regulars shall forfeit rool. and from the militia, be liable to the penalty of 20l. or six months imprisonment for each offence. The third, related to the pay of soldiers confined for debt, or under conviction for civil offence. The fourth, was declaratory of the length a waggon or cart, used upon a march, shall go, and the rate by which the proprietor of such vehicle shall be paid. The fifth, was removing doubts respecting troops on a march not being liable to pay toll; and the last amendment was, authorizing summary process against all persons who might purchase oats, hay, or straw, from dragoons. He concluded by moving these amendments, which were severally agreed to.

Wednesday.—The House having resolved itself into a Committee to consider his Majesty's Message respecting the Prince of Wales.

The Chancellor of the Exchequer, after having entered very fully into the privations his Royal Highness had experienced, now for nearly eight years, and considering that to enable him to support that degree of dignity and splendour which, from his elevated situation, he was entitled to, and in the maintenance of which every man, who was a friend to his country, had a deep and constitutional interest, moved "That it be an instruction to the Committee, to grant to his Majesty the yearly sum of 60,000l. out of the Consolidated Fund, to take place and be computed from the 5th of Jan. 1803, and to continue till the 5th of July, 1806, to be applied to the use of his Royal Highness the Prince of Wales, for the support of his dignity, &c." which produced a debate of such length, that our limits will not admit giving even an outline, the principal speakers were, the Solicitor General, Mr. Sheridan, the Chancellor of the Exchequer, Mr. Fox, and Mr. Banks; which

terminated in the motion for an addition of 60,000*l.* per annum being carried *unm. con.*

Monday Feb. 28.—Mr. Tyrwhitt presented a communication from his Royal Highness the Prince of Wales; stating, that the Prince has felt, with the most sincere and affectionate gratitude, the gracious purpose of his Majesty in recommending his present situation to the consideration of Parliament. That the Prince deems it incumbent on him to express his warmest acknowledgments for the liberality of Parliament. With respect to the Prince's claim to an account of the revenues which accrued from the Duchy of Cornwall from 1762 to 1783, however strong his confidence in the validity of his claim; a confidence fortified by the greatest legal authorities; yet, as he trusts that, through the gracious interposition of his Majesty, and the liberality of Parliament, he shall be enabled otherwise to provide for those demands on his justice, which alone induced him to assert his right, he now cheerfully relinquishes his suit, and has directed his law officers to forego all further proceedings.

Mr. Sheridan moved, that his Royal Highness's Message be entered on the Journals.—Ordered.

Tuesday, Feb. 29.—Leave was given to bring in a bill to regulate his Majesty's marine force while on shore. The Chancellor of the Exchequer brought up a bill for enabling his Majesty to grant the sum 60,000*l.* annually, from the consolidated fund, to his Royal Highness the Prince of Wales, and for repealing so much of an act of the 35th of his Majesty, as directed the application of 13,000*l.* from the revenues of Cornwall to the liquidation of his Royal Highness's debts.—Read a first time.

Wednesday, March 2.—The House in a Committee of Supply, the Chancellor of the Exchequer moved that 1,032,151*l.* 4*s.* 8*d.* be granted for the purpose of defraying the charges of the army extraordinaries, from the 25th December, 1801, to the 24th December, 1802. Agreed to.—The Prince of Wales's annuity bill was read a second time, and the mutiny bill a third time and passed.

Friday, March 4. A very long debate took place, on the motion of Mr. Calcraft, for a Committee to enquire into the embarrassments of the Prince of Wales, and into the most effectual means of relieving them as speedily as possible. The motion was supported by Mr. Erskine, Mr. Fuller, Mr. Tierney, Sir W. W. Wynn, Sir W. Geary, Mr. Fox, Mr. Sheridan, and several others; and opposed by Sir Richard Buxton, (who moved the previous question) Mr. Curwen, Mr. H. Lascelles, the Chancellor of the Exchequer, Lord Hawkesbury, and Lord Castlereagh. The ground of opposition was, that it was receding from the principle laid down by Parliament, and that every part of the proceedings which had led to the proposition that had lately been unanimously adopted by the House, was unreservedly communicated to his Royal Highness, and had been honoured with his unequivocal approbation. On a division there appeared, for the previous question 184, against it 139; majority 45. In the course of the debate it was stated, that the motion was brought forward without the knowledge of the Prince, and that his Highness did not sanction any further discussion.

Tuesday, March 8.—The Chancellor of the Exchequer brought down the following

MESSAGE FROM HIS MAJESTY:

“GEORGE R.

“His Majesty thinks it necessary to acquaint the House of Commons, that, as very considerable military preparations are carrying on in the ports of France and Holland, he has judged it expedient to adopt additional measures of precaution for the security of his dominions. Though the preparations to which his Majesty refers, are avowedly directed to colonial service, yet, as discussions of great importance are now subsisting between his Majesty and the French Government, the result of which must at present be uncertain, his Majesty is induced to make this communication to his faithful Commons, in

the full persuasion that, whilst they partake of his Majesty's earnest and unvarying solicitude for the continuance of peace, he may rely, with perfect confidence, on their public spirit and liberality, to enable his Majesty to adopt such measures as circumstances may appear to require, for supporting the honour of his Crown, and the essential interests of his people.

"G. R."

The Chancellor of the Exchequer then moved, that the House should, to-morrow morning, take this message into consideration.

Wednesday, March 9.—The Chancellor of the Exchequer moved the order of the day for taking into consideration his Majesty's message; which having been read, Mr. Addington said, "I rise for the purpose of proposing an address of thanks to his Majesty for his gracious message of yesterday."

Thursday, March 10.—Mr. Addington brought down a message from his Majesty, stating that his Majesty, in compliance with the powers vested in him by an act of the last session of Parliament, had resolved to call out and embody the whole or a certain part of the militia, &c.

The message having been read by the Speaker, the Secretary at War moved an address to his Majesty, thanking him for this communication. The motion was put and carried *nem. con.*

Friday, March 11.—The House, in a Committee of Supply, Mr. Garthshore moved, that 10,000 men be employed in the sea service of Great Britain, for ten lunar months, including 2400 marines: the motion was carried *nem. con.* and the several sums necessary for the maintenance and pay of seamen for ten lunar months were voted.

Monday, March 14.—Mr. Byng brought up a Bill for granting additional allowances to Coroners, which was read a first time.

The House went into a Committee on the East India accounts, when Lord Castlereagh, in a long and eloquent speech, presented a statement of the present and probable state of the Company's affairs at the expiration of their charter in the year 1813.

The Report of the Committee of Supply for granting 10,000 seamen for the service of the Navy, was brought up and agreed to.

Tuesday, March 15.—The Secretary at war brought up a bill, for making provision for the families of militia men, drawn to serve in the militia.

Wednesday, March 16.—Mr. Addington rose to move for a Committee, to enquire into the charges on the civil list; and to report; which was ordered accordingly.

Friday, March 18.—The Bill enabling the proprietors of the Grand Junction Canal to raise money for the purpose of carrying the Canal to the London Dock at Wapping, was read a third time and passed.

FRANCE.—Under the article of Great Britain, we have already noticed the grounds of the jealousy of the British government, of the First Consul's projects. The measures adopted by England, have prevented the sailing of the expedition destined for Louisiana, and the preparations for embarking the troops have been abandoned.

An expedition for India sailed on the 7th of March, from Brest. The vessels that compose it are the *Marengo*, of the line, and the frigates *Semillante*, *L'Atalante*, *La Belle Poule*, and the transport *La Cote D'Or*. Decaen is appointed Captain General, and Admiral Linois has the command of the squadron.

Two frigates have been dispatched from Toulon to cruise before Algiers, and to prevent the Corsairs of that port from injuring the French commerce. Another frigate is preparing for the same service. The Dey of Algiers it is known, has allowed two months to the agent of the Republic to quit his states; but for what reason he has resolved on this measure, we are not acquainted.

Decrees have been issued by the First Consul, prohibiting the exportation
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of specie of all kinds, and of articles manufactured in gold and silver. These measures have been caused by the late influx of cash from the Republic into England. Several tons have lately been sent from Calais to Dover.

A general statement of the finances of the Republic has been published, by which it is made to appear, that the total receipts amount to \$89,500,000 francs, and the expenditure, including the interest of the public debt, to \$81,300,000, leaving a surplus in the treasury of eight millions, about 350,000*l.* sterling.

It is said, that 17 sail of the line are getting ready with all possible expedition in the inner road of Brest. There was a requisition at Cherbourg for men, and the officers sent them off from that and the neighbouring places, for Brest, with the greatest expedition. Similar activity is said to prevail at Rochfort, L'Orient, and indeed in all the French ports.

The Porte has nominated Galib Effendi, its resident Ambassador at Paris.

TURKEY.—By dispatches received from Lord Elgin at Constantinople, dated January 15, 1803, it appears that the differences which had subsisted between the Sublime Porte and the Beys of Egypt, have been satisfactorily arranged through the mediation of his Lordship.

Lord Elgin has left Constantinople, and is on his return to England. Before his departure, the Grand Seignor presented him with a sabre richly set with diamonds, of the value of 100,000 piastres. He likewise sent on board his ship, several chests full of Oriental and Turkish rarities, intended partly for the King of England, and partly for Lord Elgin. The value of all these presents is estimated at 600,000 piastres.

On the same day that Lord Elgin left the Turkish capital, General Brune, the ambassador from the French Republic arrived there. The French accounts state his reception to have been highly flattering, and that all the commercial relations of the French, have resumed their ordinary course in the trading towns of the Levant.

Mr. Drummond, hitherto the British Minister at the Court of Naples, will replace Lord Elgin as the English Ambassador at Constantinople.

ITALY.—The Maresc Bailli Thomasi has, it is said, accepted the dignity of Grand Master of Malta, for which he was originally proposed.

A new plan of political arrangement has gained credit on the continent, which would give to the King of Sardinia the city and principality of Sienna, containing two fifths of the kingdom of Etruria as an indemnity. The king of Etruria, according to this arrangement, would receive in exchange the duchy of Parma, not comprehending that of Placenza, which would be united to the Italian Republic. It is further added, that as a consideration for Parma, Spain is to cede to the Republic the sovereignty of the Floridas.

The Pope is engaged on a plan formed by Michael Angelo, for diverting the course of the Tiber, with a view of recovering those monuments of ancient art that are to be found in its channel.

HOLLAND.—The appearance of an approaching rupture between England and France, has occasioned great consternation in the commercial part of the Dutch nation, and has made a very unfavourable impression on the public funds.

The navigation and trade to Batavia, and the Dutch East and West Indies, is declared by government, to be free and open for all nations of the Republic under certain conditions.

GERMANY.—On the same day that the message of the King of Great Britain was sent to both Houses of Parliament, his Imperial Majesty signified to the Diet of the Empire, his refusal to accede to various dispositions made in the plan of indemnities; from whence some politicians have inferred that the two courts acted upon a previously concerted plan. There is not, however, any other foundation for such an idea.

On the 17th of February, his Royal Highness, Duke Ferdinand, took possession of the Archbishoprick of Salzburg. The Duke has also been proclaimed anew sovereign of Berchtholsgaden, and the other countries comprised in the Grand Duke of Tuscany's indemnities.

RUSSIA.—The First Consul of the French Republic has, it is said, signified to the Russian Ambassador, his willingness to comply with the wishes of his Imperial Majesty, not only with regard to the island of Malta, but also with respect to the demand of an adequate indemnity for the King of Sardinia. The Chief Consul has not, however, declared of what that indemnity is to consist; the different propositions made at first to the Court of Petersburg, have not been accepted.

Agriculture.

LORD SOMERVILLE'S ANNUAL SHOW OF CATTLE,

AT LANGHORN'S REPOSITORY,

ON MONDAY, FEBRUARY 28, 1803.

HIS Lordship's object is to give, annually, a prize of 30*l.* to the best, and 20*l.* to the second best yoke or pair of oxen, which shall have worked together in yoke or harness, for the space of three years previous to their being turned up to graze, aged from five to eight years, weighing from 100 to 160 stone, from 10 to 16 score per quarter, being the size best adapted to labour, and to the average of the markets. The number of days work to be certified, and that they have had no corn of any description.

His Lordship likewise offers another prize of 30*l.* in like proportion, to those who produce, in a fair store state, the best five ewes not in lamb, and not exceeding thirteen nor less than ten months old. Also, the five best fat wethers, four or six tooth sheep (or three years old), 20*l.* of any sort of clothing wool breed, whether horned or not.

The prizes to be determined by five umpires; and to be divided between the farmer and grazier who owned the oxen during the last twelve months. The prizes for sheep to the breeders. The two pair or yoke of oxen to which the premiums shall be adjudged, are not to be slaughtered, or knocked down with the axe, but laid or pitched, according to the usage of other countries, by pricking them in the spine.

The following Oxen were shewn for the prizes :

Two Hereford oxen, worked and grazed by his Majesty at Windsor.

Two Devons, worked by J. Hellings, grazed by H. Coles, fed upon grass and hay only—Drift, when fat 140 miles.

Two Herefords, worked and grazed by Mr. Edmonds, fed upon grass and hay only—Drift, when fat, 90 miles.

Two Kentish, worked and grazed by Mr. Millar.

Two Suffex, worked and grazed by Sir Thomas Carr.

Two Devons, worked and grazed by the Duke of Bedford.

Two Devons, worked by Lord Somerville, grazed by Mr. R. Hudson.

Four Glamorgans, grazed by Mr. Walker.

Four Glamorgans, grazed by Mr. Martin Webber—Drift, when fat, 128 miles.

Two Herefords, worked by Mr. J. Skyrme, and grazed by Mr. Robert Byng.

Two Glamorgans, grazed by Mr. Waters.

The following Heifers were shewn :

One Suffex, belonging to Sir Thomas Carr.

One Devonshire, belonging to the Duke of Bedford.

One Kentish, belonging to Mr. Whittle; and two bulls belonging to the same gentleman.

The following fat sheep were shewn for the prize of 20l. five in each lot; two of them were killed, and their weight, &c. ascertained:

Five Wiltshire wethers, three years old, belonging to Christopher Chapman, of East Wickham, in Kent—No. 1, when alive, 239 lb.—No. 2, 244 lb.

Five South Down wethers, one year old, belonging to the Duke of Bedford, from Maulden Farm, Bedfordshire—No. 1, when alive, 127 lb.—No. 2, 158 lb.

Five South Down wethers, one year old, belonging to the Duke of Bedford, from Priddle Farm, near Woburn—No. 1, when alive, 166 lb.

Five Ryland wethers, two years old, belonging to Lord Somerville, fed on grass and hay only—No. 1, when alive, 114 lb.—No. 2, 123 lb.

Five South Down wethers, two at two years old, and three one year olds, belonging to Mr. Edward Smith—No. 1, when alive, 133 lb.—No. 2, 143 lb.

Five South Down wethers, two years old, belonging to Mr. Ellman, of Suffex—No. 1, when alive, 147 lb.—No. 2, 164 lb.

The following Ewe Lambs, store stock, were shewn for the prize of 30l.

Five South Downs, belonging to Mr. Edward Smith.

Five ditto, belonging to Mr. Runciman, of Woburn.

Five Ryland's, belonging to Sir W. Clayton.

Five ditto, belonging to the Hon. W. Harcourt.

Five two-tooths Ryland and Spanish, belonging to Lord Somerville.

The judges appointed by his Lordship to determine on the prizes, were—the Hon. George Villiers, Mr. Ebsworth, Mr. Harrison, Mr. Peltar, Mr. Lindley, and Mr. Lloyd.

The following Noblemen and Gentlemen attended the meeting, viz.—The Duke of Bedford, Lord Sackville, Lord William Russell, Sir Thomas Carr, Mr. Byng, Mr. Westcar, Mr. Ellman, Mr. Runciman, and a great number of other Agriculturists and Breeders of Cattle, from various parts of the country.

On Tuesday morning the repository, in Barbican, was visited by a more numerous assemblage of amateurs and professional men, than attended them the preceding day; and, among the additional Nobility, we noticed his Grace the Duke of Montrose and the Marquis of Sligo.—Several Agricultural improvements were submitted to the judgment of the spectators, and among those most approved were, a Bruising Machine, a Churn, a Plough, and a harrow. At half past four the company adjourned to dine at the Freemasons' Tavern. Upwards of two hundred gentlemen sat down to dinner, and, at the removal of the cloth, the regulations for the ensuing Annual Meeting were distributed to the company, and afterwards a Prospectus of the approaching Sheep Shearing at Woburn, *which see at the conclusion of this article.*

The Chair was taken by Lord Somerville; his Lordship having on his right hand the Duke of Bedford, Lord Sackville, Lord William Russell, and Mr. Northey; and, on his left, the Marquis of Sligo, Lord Talbot, Mr. Coke, of Norfolk, Mr. Tyrwhitt, the Prince's Secretary, and many other distinguished persons. After the removal of the cloth, the usual toasts were drank. Lord Somerville then proceeded to mention the names of those gentlemen entitled to the prizes, and said, that the opinion of the judges was, that

In the 1st Class of Oxen—The Duke of Bedford, for the best yoke of Devonshire-bred Oxen, was entitled to the prize of 30l.

In the 2d Class of Oxen—Mr. Edward Smith, for the best yoke of Hereford-bred oxen, was entitled to the prize of 20l. But, at the same time, his Lordship observed, that as there was an idea that these oxen were overweighted according to the prize articles, then this prize would fall to Mr. Martin Webber, the next in succession.

In the 1st Class of Sheep, and the best pen of Ewe Hogs, Mr. Edward Smith, for his five South Downs, was entitled to the prize of 30l.

In the 2d Class, for the best fat wether, four or six tooth sheep, to the Duke of Bedford, 201.

The prizes being distributed, Lord Somerville returned thanks to the competitors; after which, his Lordship said, that respecting the wool of the several sheep, the opinion of the best informed men was, that

	s.	d.
1st. Mr. Chapman's Wiltshire was worth	1	6 per lb.
2nd. Mr. Ellman's	1	11
3d. The Woburn	2	0
4th. The Morden	2	1
5th. Mr. Runciman's	2	1
6th. Mr. Smith's	2	2

His Lordship concluded with stating, that the wool, produced by the mixture of the Spanish and South Down, was so extremely profitable, from his own experience, as to double the fleece, and more than pay the landholder's rent. Several other instances were adduced, all which were corroborated by the ablest men in the wool trade.

Lord Somerville, to alleviate the disappointment of the unfortunate candidates, produced two silver cups, into each of which he put two names. The Marquis of Sligo drew one, and Lord Sackville another; and the elected two were, Mr. Millar and Mr. Byng, who each received the prize.

PROSPECTUS OF THE WOBURN SHEEP-SHEARING,

June 13, 1803.

MORNING.

EVENING.

Show of Leicester Rams	} Monday.	{ Sale of Leicester Ewes Show of Suffolk and Leicester Pigs
Show of South Down Rams		
Prize Wethers	} Tuesday.	{ Leicester Rams let Sale of Suffolk and Leicester Pigs
Prize Theaves		
Prize Wethers, dead	} Wednes.	{ South Down Rams let Show of Hereford and Devon Cattle
Sale of South Down Ewes		
Implements	} Thursday	{ Sale of Hereford and Devon Cattle, continued Leicester Rams let.
Second show of Leicester Rams		
Sale of Hereford and Devon Cattle		

Dulverton and Bampton Agricultural Society.

AT a Meeting held the 20th day of November, 1802.

The Right Hon. LORD PORCHESTER, President.

The following Premiums were agreed to be given:

On the first Saturday in April, 1803, at Dulverton.

For the best Heifer (not exceeding years old), with her calf,
dropped year 1803, the breed and actual property of } A Silver
the member producing them } Goblet.

For the second best ditto } 1 1 0

For the best boar, being the actual property of the member produc-
ing him, such boar to be kept by the claimant for six months after
being shewn } 1 1 0

Whitsun Tuesday, in Bampton.

For the best four teeth Ram, the breed and actual property of } A Silver
the member producing him } Goblet.

For the second best ditto } 1 1 0

To the best Sheep-shearer } 0 10 6

To the second best ditto } 0 5 0

At the General Meeting in Dulverton (on the Saturday next before the last Wednesday in November), being Dulverton Great Market.

For the best bull, not exceeding the age of three years, being the actual property of the member producing him, such bull to be kept by the claimant, until the 1st of June following } A Silver Goblet.

For the second best ditto } 1 1 0

To the cottager or occupier of a Farm not exceeding twenty acres, producing the greatest quantity of honey from his own hives, without destroying the bees } 0 10 6

For the best half score of store ewes, being the breed and actual property of the member producing them } A Silver Goblet.

For the second best ditto } 1 1 0

For the best stallion (not exceeding seven years old) for Roadster's, that shall attend Dulverton market the ensuing season } 1 1 0

To the husbandman subsisting by the day labour, who shall have brought up the greatest number of legitimate children to the age of nine years without any parochial relief (excepting binding out any such children), producing certificates of his honesty and good conduct, and also the number and ages of his children, as nearly as can be ascertained, from his master, the minister of his parish, and some of the parish officers } 1 1 0

To the young man having served out the term of his apprenticeship under his parish indentures, who shall produce proofs of the greatest honesty, fidelity, and industry, during his apprenticeship (such claim to be made within twelve months after the expiration of his indenture) } 0 10 6

To the young woman on terms similar to the last } 0 10 6

To the young man who having served his apprenticeship under parish indentures shall immediately after the expiration of such apprenticeship, have continued to serve the same master for the greatest number of years, certificates as above to be delivered in by the claimant } 0 10 6

To the young woman on terms similar to the last } 0 10 6

The heifers, boars, rams, bulls, and sheep, to be produced in their respective markets by eleven o'clock in the forenoon, the sheep-shearing and other claims at twelve. The rams to be shewn in their coats, and shorn at Bampton.

Seven days notice of intention to claim any of the above premiums to be given to Mr. STERNE, Treasurer and Secretary.

On Tuesday last, the 15th current, by appointment of the Glasgow Farmer Society, a ploughing match took place on the Farm of Horselet-hill, near this city, in the possession of Mr. James Sharp. Notwithstanding that the weather was unfavourable, twenty three ploughs started. All the ploughmen gave general satisfaction, but the judges appointed the prizes to the following, viz.

The first to Archibald Cross, farmer, Uddifston, Bothwell parish.

The second, to Archibald Millar, servant to Mr. George Burn, at Kepoch, Barony parish.

The third, to George Monteath, son of James Monteath, farmer at Balshaggy, Govan parish.

And the fourth, to John Lohead, servant to William Lohead, farmer at Leggats-hill, Eastwood parish.

After the match, Mr. Sharp entertained a number of the members and spectators, in his own house.

One of the spectators at the above match, was a gentleman from Ireland, employed by the Farmer's Society of Ireland, for purchasing farming utensils in this country; and who, in the warmest manner, expressed his approbation of the work, and of the horses employed.

PLOUGHING MATCH.—The annual ploughing match appointed by the Kilmarnock Farmers' Club, took place on Friday the 4th current, in a field near that town, belonging to Mr. Paterfon, farmer in Struthers. The severe frost during the night betwixt Thursday and Friday, prevented the ploughing till near mid-day, when eighteen competitors started, and notwithstanding the disadvantages from the severity of the weather, the judges declared that the whole was well executed, and adjudged the premiums in the following manner :

First prize to Alexander Halbert; 2d prize to James Willon, servant to Alexander Guthrie, farmer in Holms of Kilmarnock; 3d prize to Hugh Wallace, servant to John Guthrie, in Grange of Kilmarnock.

This useful institution has continued about twelve years, and was the first establishment of the kind in the west country, during which period the example has been followed in different parts of the country, and it is expected will soon become general. As improvement in agriculture is of the first consideration to this country, in the progress of which all ranks of men are interested, institutions tending to diffuse a spirit of emulation amongst that class of men who are employed in the laborious part of husbandry, and their masters and employers in furnishing them with implements of the most approved kind, ought to be more generally encouraged; the above preferences being, in a great measure, as much owing to the superior construction of the ploughs, as to the steadiness of the horses, or the skill of the ploughmen, all of which were of the first class.

On Thursday the 10th instant, the Airdrie Agricultural Society decided their premiums for ploughing in a field belonging to Andrew Stirling, Esq. of Drumpelzier. Sixteen ploughs started. The whole of the work was remarkably well performed, and gave great satisfaction to a numerous concourse of spectators, many of whom were excellent judges. The prizes were adjudged as follows;—The first to John Anderson, servant with Colonel Baillie, of Cairnbrae; the second Charles Russel, also servant with Colonel Baillie; the third to William Russel, servant with Colonel Douglas, of Rosshall; the fourth to Charles Turnbull, servant with Henry Monteith, Esq. at Monkland.

On the 22d ult. a ploughing match took place on the estate of Garnkirk, and notwithstanding the weather proving unfavourable, fifteen competitors appeared on the field. The ploughing was in general well executed, and afforded much satisfaction. The judges appointed the prizes to the following ploughmen:—To Robert Dick, servant to John Hay, farmer, Coltnockmoor, two guineas:—To Hugh Watson, farmer, Leckethill, Garnkirk estate, one guinea and a half:—To William McCaen, farmer, Lumlock, one guinea:—To Walker Graham, servant to Walter Watson, farmer, Hornhill, Grankirk Estate, half-a-guinea. The other competitors received five shillings each. The 1st, 2d, and 3d. had Wilkie of Uddieston's plough, the construction of which met with general approbation. After the match, a number of the Gentlemen and most respectable farmers dined at Garnkirk House, where many appropriate toasts were drank with much pleasure. In the course of the evening, Mr. Mackenzie, under whose immediate patronage this ploughing match took place, very properly observed the great benefit likely to be derived to agriculture, from an institution of this kind being made annual in that neighbourhood; which was unanimously approved of, and large subscriptions made for that laudable purpose.

The annual spring show of cattle by the Farming Society, was held their Repository at St. Stephen's Green. A Great number of cattle, extraordinary for shape, size, or other qualities, were exhibited. A bullock of Mr. Critchley's (county of Wicklow) attracted, by his uncommon height and bulk, very great admiration: this creature is nearly six feet in height.

Two fine oxen of Mr. Latouche's were admired for their great beauty and fat.

Several hogs of enormous dimensions were shewn in the Riding-house. A number of curious poultry, with some improved implements of agriculture, formed part of the exhibition.

His Excellency, and a great number of the Nobility, attended at the Repository, and seemed highly gratified.

Mr. Fortescue's heifer shewn at the Repository, and to which a medal in the first class was adjudged, is without exception in symmetry, one of the most beautiful animals that has been seen for a long time. She was purchased by Keegan of Clarendon market.

NORFOLK AGRICULTURAL SOCIETY.

At a general meeting of this Society, held at the Market Cross, in Lynn, on Wednesday the 23d of February, Wm. Hothe, Esq. in the chair. Letters were laid before the Society from very respectable houses in Scotland, stating, that associations of the landholders in that part of Great Britain had been formed, for the purpose of sustaining the prices of barley, the growth of that country; and for the more effectual means of doing so, they had agreed, that a petition should be presented to the present session of Parliament, the object of which is to reduce the last excise upon malt made in Scotland to one half of the same; and as an equivalent to the revenue, to lay a tax equal to 3s. per quarter, at least, upon all barleys imported from the south part of Great Britain into the ports of Scotland.

This Society having duly considered the same, is of opinion, that the granting of such a petition, (independent of its being a most flagrant breach of the articles of the Union), would be extremely prejudicial to the agricultural interests of South Britain, and of this county in particular, and as such ought to be opposed by the counties at large. Acting upon this principle, the Society has communicated the object of the letters abovementioned to the Members for this county, and the towns in it, together with its sentiments upon the measure, and has directed its Secretary to write to the several Agricultural Societies in this kingdom, in order to make the same known to them.

A LARGE HOG.—Mr. Phipps, Butcher, of Rottingdean, Suffex, has, perhaps, the largest and most extraordinary hog that ever was reared in this kingdom. In its present unfattened state, it is, by good judges, allowed to weigh one hundred stone. It measures in height between three and four feet, in girth eight feet, in length, from the point of the nose to the extremity of the tail, ten feet. This enormous hog was bred by Mr. Rickman, of Barcombe Mill, of whom it was purchased, when quite young, by Mr. John Smith, Butcher, and by him sold to Mr. Trill, Farmer, at Ovington, for fifteen pounds, who, after keeping it a few months, sold it to the present proprietor for *thirty-five pounds!* the price of a prime fat ox. Mr. Phipps takes great pride in this extraordinary animal, and intends to exhibit it fat, at the next Christmas Show of Cattle, at Smithfield, when it is expected it will weigh 150 stone.

A remarkably fat pig, of the Chinese admixture, was killed last week, at Dulverton, Somerset, by Mr. John Cookfley, which measured 86 inches high, 82 round the body, 54 round the chops, and weighed 645lbs.—upwards of 18lbs. per inch.

PLOUGHING MATCH,

At Terrenure, near Rathfarnham, two miles south of Dublin, on the 11th and 12th of March instant, the Farming Society of Ireland, will give the following premiums: First day, 11th March.

SWING PLOUGHS.—To the person who shall plough half a rood of land in the best manner, and with the least force, five inches deep, with one man and two horses, five guineas.

To ditto, the second best, three guineas.

To ditto, with due man and two oxen or heifers, five guineas.

To ditto, the second best, three guineas.

WHEEL PLOUGHS.—To the person who shall plough half a rood of land in the best manner, and with the least force, five inches deep, with one man and two horses, five guineas.

To ditto, the second best, three guineas.

To ditto, with one man and two oxen, or heifers, five guineas.

To ditto, the second best, three guineas.

IRISH PLOUGHS.—To the person who shall plough half a rood of land in the best manner, and with the least force, eight inches deep, with a man, a boy, and four horses, five guineas.

To ditto, the second best, three guineas.

To ditto, with four oxen or heifers, five guineas.

To ditto, the second best, three guineas.

Second Day's Ploughing 12th March.

To the person, having obtained a first premium in any class on the former day, who shall plough thirty perches of land in the best manner, the gold medal.

The Society will reward the Ploughmen in proportion to their merit.

The ploughing to begin each day at 11 o'clock.

By order,

Board-Room, Feb. 21, 1803.

JOHN HAMILTON, Sec.

The Vienna Court Gazette, of the 13th of February, contains the following article:

“Among the experiments in rural economy, which for their utility, merit publication, were distinguished those of Counsellor Hofmaistre, Director of the estates and Lordships of the Imperial family. This economist has, in his sheep-walks in Hungary, more than 24,000 sheep of the Spanish breed. As he had, of late years, lost many of them by the malady of the skin, which affects those animals, he determined to inoculate all his sheep with the *virus* of that malady. He was previously assured of the success and efficacy of vaccination. This experiment took place successively on 8000 lambs and 2000 sheep. None perished, and there were but a very few on whom the matter did not operate. M. Hofmaistre has again inoculated 2000 of these animals, and put them among other sheep disordered by this kind of small-pox. None were infected, notwithstanding that communication which would necessarily have been contagious, if the principle of the disorder had not been destroyed by inoculation.

Mr. Wm. Pugh, butcher, in Wakefield, killed a lamb of the Northumberland, breed which was quite fat, and weighed from six to seven pounds per quarter.—Neither ewe nor lamb had any other food than grass, with a few turnips, and a little hay, during the time the ground was covered with snow, nor any other care than being sheltered from the severity of the weather. This is a proof that lamb may be produced for the table, without any extraordinary expence, at an earlier period than is generally attempted. It is true that the ewe was in good condition, having been brought to the fortnight fair to be sold with a lot of fat sheep, at the time she dropped her lamb, which was since Christmas: this might be one reason for the lamb thriving so well, but it is well known, that the Northumberland sheep are remarkable for being good breeders and good sucklers; and for size, make, and staple of wool, may vie with, and in hardiness of constitution, which is a material quality in this part of the country, they far exceed the so-much-boasted breeds of the southern counties.

On Friday last, a ewe sheep, belonging to Mr. Bellingham, of Boreham, yeanned five lambs, all of which are living.

A sow, the property of Mr. Steptoe, of Thatcham, at her first litter, had 18;—at her second, 20;—at her third, 25;—and at her last, within these few days, 22.

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I i

CHERTSEY, MARCH 5.—At our fair, on Monday last, there was a good show of pigs, and cattle in general; and notwithstanding, the prices were lower than at the late preceding fairs, there were very few fold, most of the persons inclined to purchase being of opinion, that a greater reduction must soon take place, as the prices of all kinds of live stock are considerably higher than justice or necessity warrants. There was a very capital show of horses; those of the draught kind sold briskly, at high prices.

WINCHESTER, MARCH 7.—On Monday last commenced our Lent Fair, at which there was a good supply of cheese, which sold from 60s. to 70s. prime at 80s. per cwt. at which prices a large quantity remained unfold; which caused, on the second day, a reduction in the price of 12s. per cwt. A considerable quantity of bacon was sold, upon an average about 9d. per lb. Horses shewed well, but their prices being high they had a dull sale.

NORWICH, MARCH 9.—Downham (commonly called Winnould) Fair, on Thursday last, was more numerously attended than was ever before witnessed; there were many good horses, which sold readily at very high prices. Neat stock were rather flat, and in sheep little business was done.

At Dumfries fair there was a great show of horses; principally of the draft kind. Those that were good, fetched very high prices. A great number of Irish horses were likewise shewn; very few of which possessed either figure or action; but such as did, were readily bought up by the different dealers.

At Bristol fair, there was a great show of both fat and lean cattle, which fetched very high prices, especially the latter. Horses were numerous, but good ones excessively high in price.

At Shrewsbury fair, cattle, sheep, and pigs, sold at reduced prices; as did also cheese, of which a large quantity was brought for sale.

Manufactures and Useful Arts.

(Continued from page 146.)

PREMIUMS offered by the Trustees and Commissioners for Fisheries, Manufactures, and Improvements in Scotland.

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|--|------|
| 20. For the 6 best pieces of cassimere of different colors, each piece to be under twenty yards long and 3-4ths broad, and not exceeding from 4s. to 5s. per yard in value | £ 18 |
| 21. For the best 8 pieces of flannel in imitation of the Welch manufacture each piece not to be under twenty-five yards in length and 7-8ths in breadth, and not exceeding 2s. 6d. per yard in value | 16 |
| For the second best eight pieces ditto | 8 |
| 22. For the best ten pieces of flannel in imitation of the Welch manufacture, each piece not to be under twenty-five yards in length, and 9-8ths in breadth, and not exceeding 1s. 8d. in value | 14 |
| For the second best ten pieces ditto | 6 |
| 23. For the best ten pieces of common white woolled flannel, 7-8ths wide each piece not under twenty-five yards in length, and not to exceed 1s. 4d. per yard in value | 12 |
| For the second best 10 pieces ditto | 5 |

The fourteen preceding articles to be manufactured entirely of Scottish wool, the swansdowns and cassimeres excepted, which may be made either of foreign or Scotch wool, and all of them dyed of various colors (except the flannels) and the articles 12, 13, 14, 15, and 16, all to be dyed in the wool. It is particularly recommended to the manufacturers to cause greater attention to be paid to the spinning of the yarn as they think there is a considerable deficiency in this part of the manufacture.

COTTON AND FANCY ARTICLES, &c.

- | | |
|--|----|
| 24. For the best ten pieces of the most fashionable and elegant fancy muslin for ladies dresses, the yarn to be spun in Britain. | 20 |
|--|----|

25. For the best ten pieces of muslin handkerchiefs in imitation of the Indian mullmull, to be woven in a 1600 reed, the yarn to be spun as above, £18
26. For the best two dozen of shawls or scarfs for ladies wearing, plain or worked according to the fashion, the fabric to be in imitation of the Indian. 14
27. For the best two pieces of black or colored twilled farfenets 5-8ths wide, each piece containing not less than 60 yards. 16
28. For the best two dozen fashionable silk handkerchiefs for ladies and gentlemen's wearing 12
29. For the best twelve pieces of white fustians for lining, each piece to contain 20 yards, to be half yd. broad, and not exceeding 1s. per yd. 10
30. For the best twelve pairs of fashionable leather gloves for ladies, sorted according to the taste of the manufacturer, each pair to have the private mark of the manufacturer put in the inside of the top of the right hand glove; so that when mixed for the sake of comparison, the gloves of the different competitors may be easily distinguished from each other: the whole put up in bundles of one dozen each, and each dozen to be bound with a narrow slip of white paper on which is to be distinctly marked the kind, and the invoice price of the dozen, and not to be either of foreign or home production 14
31. For the best twelve dozen pair of leather gloves for men, sorted according to the taste of the manufacturer. All to be put up, bound and marked in the same manner as the preceding article, and not exceeding the London price 14
32. For the best six dozen pairs of plain silk stockings manufactured upon a three needle silk frame of a full size for men, two dozen white, two dozen black, and two dozen colored; sorted and completely finished for sale; the price not to exceed the English wholesale price at the time. To be put up in bundles of one dozen each, to be bound in narrow slips of paper, on which is to be marked the invoice price 14
33. For the best six dozen of breeches pieces of full sizes and various colors, finished and dressed; one dozen of them silk, and the other five dozen of them worsted, either plain or ribbed, according to the fashion; the price not to exceed the English wholesale price at the time, and to have the usual marks denoting the number of threads 15
34. For the best sixteen double gross polished metal buttons, with regard to quality and patterns 10
- For the second best sixteen double gross ditto 5

PATTERNS FOR DIAPER LINEN.

35. To the person who shall invent and draw on design paper, the best pattern on the breadth of 20 designs, he being at liberty to put as many of the 20 designs into the body or border work as he shall think proper, the border to join properly, so as to make a distinct pattern in imitation of damask 4
- For the second best of the same 2
36. To the person who shall invent and draw on design paper, the best two patterns for diaper table linen, the drawing of each not to exceed three designs, and to be of a proportionable length, both patterns to be upon one piece of paper 2
- For the second best two patterns 1

The competitors will observe that whether they are successful or not in obtaining premiums, their goods will be sold to those who incline purchasing them; and for this purpose are to lie a few days after the preferences are determined; after which Mr. Thompson will account for the piece which is sold, and will return the remainder to any person having the proprietor's written authority to receive the same.

No persons or company will be allowed to gain more than two of those premiums, and: hose for different articles. Nor will any person acting as a

journeyman or servant, be allowed to compete, but every competitor must actually be and have been in business on his own account prior to the date of this advertisement.

Every person or company that has in former years gained three full premiums under any of the articles mentioned and described as above, excepting for the carpeting, damasks, diapers, and the drawing diaper patterns, is debarred from competing upon that particular article.

The public meeting held at Manchester, upon the subject of the tax upon cotton wool, has named delegates to go to London. The trade at Preston have also sent delegates; and delegates are immediately to proceed for London from Lancashire, Derbyshire, Yorkshire, and Nottinghamshire, interested in the cotton trade.

We have been favoured with the following facts connected with the duty upon cotton wool and illustrative of some of its effects :

The duty on cotton from Spain amounts to about 15 per cent. and the quantity imported since the peace (the duty operated then under the name of convoy duty) has been 350 bags.

The importation of cotton from the Levant was,

In the year 1800	_____	_____	10,849 bags.
In 1801	_____	_____	2,175 do.
In 1802, or since the peace only	—	—	4,169 do.

while the average annual importation into France from the port of Salonichi alone, is not less than 22,000 bags, besides what she draws from the rest of Greece, Cyprus, and Smyrna. Thus we may see, that though the tax has been imposed only a few years, yet it has marked its operations by almost excluding from the British market, the low cottons of the Mediterranean, Portugal, and Spain, so important in our manufacture of coarse and low priced goods.

From the colonies ceded by the peace we drew,

In the year 1800,	_____	_____	32,029 bags
In 1802,	_____	_____	31,763 do.

which amounted to one ninth part of our whole importation.

From Portugal we imported

In the year 1801,	_____	_____	37,900 bags
In 1802,	_____	_____	72,660 do.

and large as this latter importation may appear, an equal quantity was exported from Lisbon to the other countries of Europe. France alone purchased a quantity equal to what Britain had imported from Portugal the year preceding.

Cotton is not allowed to be exported from France, and pays an impost of one-half per cent. at importation.

We have heard it advanced in argument, that setting aside the impolicy of taxing the raw material of any manufacture, the tax upon cotton wool amounting annually to 300,000*l.* is no object to a trade, the annual return of which is twenty millions. These Gentlemen, however, who argue in this manner, do not advert that this tax ought properly to be stated against the raw material, and not against the manufactured article, and that upon the prime cost of the raw material it averages nearly ten per cent. Its influence upon heavy goods in a manufactured state is very great. Suppose a piece of common printed goods, which is shipped here at about 18*d.* per yard, to be manufactured from New Orleans cotton, and calculating the duty upon the raw material in all its progressive advances, it will be found to amount to about six per cent. upon this very important article of export trade in its finished state.

The manufactures are enriched by an useful invention. A Paper-merchant of Burythan, near Nuremberg, named Loeßelge, has, after many essays, succeeded in employing tan, that has been used, and a small quantity of common rags, in making very good wrapping-paper.

A method has been discovered, and practised with success, by Mr. Bertrand, at Metz, of extracting a spirit from potatoes. The process is as follows: take 6000lbs. of potatoes, and boil them in steam about three-quarters of an hour, till they will fall to pieces on being touched. The vessel in which they are boiled consists of a tub, somewhat inclined. In the lower part of it are two holes, one for the purpose of bringing in the steam produced in another vessel over a coal fire, and the other made to carry off occasionally the condensed water. After the potatoes are boiled, they are crushed and diluted with hot water, till they are of a liquid consistence; then add twenty-five pounds of ground malt, and two quarts of wort; the mixture is to be stirred, covered with a cloth, and kept to the temperature of 15° of Reaumur, or of 66° nearly of Fahrenheit. After fermentation, and the exhalation of the carbonic acid, the matter sinks down, and is fit for distillation. By means of two stills, this mass may be rectified in one day, and it will produce about forty-four quarts of spirit, worth a guinea and a half, while the whole cost, including coals and labour, is about twenty-three shillings and sixpence. The residuum is good food for hogs.

Letters from many of the manufacturing towns in England, state that the great exertions made by foreigners, to procure models of our machinery, and to entice our artisans to leave the kingdom, particularly those engaged in the cotton manufacture.

Every precaution has been taken at the ports to frustrate these measures; but we are assured very considerable progress has been made in France, and other parts of the Continent in the cotton manufacture; and that principally from the information and assistance derived from this country.

Prices of Raw Hides, Hay and Straw, &c. for March, 1803.

Raw Hides.		1st Week		2d Week		3d Week		4th Week.		5th Week.	
		s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Best Heifers & Steers, pr ft.	—	3 8	to 4 0	4 0	to 4 4	3 8	to 4 4	3 8	to 4 4	3 8	to 4 0
Middling —	—	3 4	to 3 6	3 4	to 3 8	3 4	to 3 6	3 4	to 3 6	3 2	to 3 6
Ordinary —	—	3 0	to 3 2	3 0	to 3 0	3 0	to 3 2	3 0	to 3 2	2 10	to 3 0
Market Calf —	—	9 6		9 6		9 6		9 6		9 6	
Eng. Horse —	—	15s	to 17s	14s	to 18s	15s	to 18s	15s	to 18s	15s	to 18s
Sheep Skins —	—	3 6	to 9 0	4 6	to 9 0	4 0	to 9 0	4 0	to 8 6	4 0	to 8 6
Lamb Skins —	—	3 0	to 0 0	0 0	to 0 0	0 0	to 0 0	0 0	to 0 0	0 0	to 0 0
Prices of Hay and Straw.		l. s. d.		l. s. d.		l. s. d.		l. s. d.		l. s. d.	
St. James's—Hay	—	5	6 9	5	11 6	6	3 6	6	5 6	5	12 0
—Straw	—	2	8 0	2	11 0	2	6 6	2	8 0	2	13 9
Whitech.—Hay	—	5	15 0	5	18 6	6	1 6	5	15 0	6	7 6
—Clover	—	7	1 0	7	1 0	7	0	7	1 0	6	19 0
—Straw	—	2	— 0	2	2 0	2	3 0	2	7 0	2	9 0
Uxbridge.		—		—		—		—		—	
New Wheat per load	—	—	1 to —	—	1 to —	—	1 to —	—	1 to —	—	1 to —
Barley —	—	—	— to —	—	— to —	—	— to —	—	— to —	—	— to —
Oats —	—	—	— to —	—	— to —	—	— to —	—	— to —	—	— to —
Beans —	—	—	— to —	—	— to —	—	— to —	—	— to —	—	— to —
New ditto —	—	—	— to —	—	— to —	—	— to —	—	— to —	—	— to —
Peas —	—	—	— to —	—	— to —	—	— to —	—	— to —	—	— to —
Newbury.		—		—		—		—		—	
Wheat —	—	44s	to 60s	48s	to 62s	48s	to 62s	44s	to 66s	—s	to —s
New ditto —	—	—s	to —s	—s	to —s	—s	to —s	—s	to —s	—s	to —s
Barley —	—	19s	to 23s	29s	to 23s	19s	to 23s	19s	to 23s	—s	to —s
Beans —	—	—s	to —s	—s	to —s	—s	to —s	—s	to —s	—s	to —s
Oats —	—	17s	to 20s	17s	to 20s	16s	to 20s	19s	to 21s	—s	to —s
Peas —	—	—s	to —s	—s	to —s	—s	to —s	—s	to —s	—s	to —s

Prices of Hops, Meat, Seeds, Leather, Tallow, &c. for March, 1803.

Price of Hops.		First Week		2d Week		3d Week		4th Week		5th Week											
Bags.		s.	s.	s.	s.	s.	s.	s.	s.	s.	s.										
Kent	—	—	to	110	to	168	180	to	205	180	to	200	168	to	—						
Suffex	—	—	to	110	to	160	180	to	200	180	to	195	160	to	190						
Essex	—	—	to	—	to	—	180	to	200	180	to	189	160	to	190						
Pockets.																					
Kent (new)	—	—	to	130	to	280	189	to	220	180	to	220	168	to	210						
Suffex	—	—	to	120	to	260	189	to	215	175	to	215	168	to	200						
Farnham	—	—	to	—	to	—	240	to	300	240	to	280	231	to	280						
Seeds.																					
Canary Seed (per cwt.)	—	80	to	85	80	to	85	80	to	85	80	to	85	80	to	85					
Red Clover ditto	—	82	to	114	80	to	108	80	to	105	75	to	105	70	to	100					
White Clover, ditto	—	80	to	147	80	to	147	80	to	147	70	to	147	70	to	147					
Trefoil, ditto	—	35	to	75	30	to	80	40	to	84	40	to	84	25	to	70					
Caraway ditto	—	36	to	42	40	to	44	40	to	45	40	to	45	40	to	45					
Coriander ditto	—	28	to	30	28	to	30	28	to	30	28	to	30	28	to	30					
Turnip, (per bushel)	—	20	to	24	20	to	26	20	to	25	20	to	26	20	to	26					
Rye Grass, (per quarter)	—	40	to	65	35	to	70	40	to	65	40	to	65	35	to	63					
Cinque Foil, ditto	—	—	to	—	to	—	—	to	—	—	to	—	—	to	—	—					
Rape Seed, (per last)	—	341	to	381	341	to	381	341	to	381	341	to	381	321	to	351					
Meat at Smithfield,																					
To sink the offal, p. ft. 8lb.		s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.				
Beef	—	4	4	to	6	0	4	6	to	6	0	4	0	to	5	8	4	0	to	5	6
Mutton	—	5	4	to	6	0	5	4	to	6	4	5	0	to	6	4	5	0	to	6	0
Veal	—	6	0	to	7	4	6	0	to	8	0	5	0	to	7	4	5	0	to	6	6
Pork	—	4	8	to	5	8	4	8	to	6	0	4	8	to	5	8	4	4	to	5	0
Lamb	—	0	0	to	0	0	0	0	to	0	0	0	0	to	0	0	0	0	to	0	0
Head of Cattle—Beasts about	—	1,800		2,200		2,000		2,200		2,000		2,000		2,000		2,000					
— Sheep and Lambs	—	7,500		7,500		11,500		8,000		8,000		8,000		8,000		8,000					
Price of Leather.																					
Butts, 50lb. to 56lb. each	—	19½	to	21	20	to	21	19½	to	20½	19½	to	20½	19	to	23½					
Ditto, 60lb. to 66lb. each	—	22½	to	23	22½	to	23	22	to	23	22	to	23½	19½	to	21					
Merchants Backs	—	19½	to	20	19½	to	20	19	to	19½	19	to	19½	19½	to	20					
Dressing Hides	—	19½	to	21	19½	to	21	19½	to	20½	20	to	21½	21½	to	22					
Fine Coach Hides	—	21	to	22½	21	to	22	20½	to	22	22	to	22½	22½	to	23					
Crop Hides for cutting	—	20½	to	22½	20½	to	22	19½	to	21½	20	to	21½	18½	to	19½					
Flat Ordinary	—	18½	to	20	18½	to	20	18	to	19	18	to	19	19½	to	20					
Calf Skins, 40 to 50lb. p. doz.	—	26	to	32	26	to	32	26	to	33	26	to	33	26	to	33					
Ditto, 50lb. to 70lb. do.	—	27	to	32	27	to	32	27	to	32	28	to	32	28	to	32					
Ditto, 70lb. to 80lb. do.	—	26	to	28	26	to	28	26	to	28	26	to	28	26	to	28					
Sm. Seals (Greenland)	—	40	to	42	40	to	43	39	to	42	39	to	42	39	to	42					
Large do.	—	51	to	71	51	to	71	51	to	71	51	to	71	51	to	71					
Tanned Horse Hides	—	18s	to	32s	18s	to	32s	18s	to	33s	18s	to	33s	18s	to	33s					
Goat Skins per doz.	—	—	to	—	—	to	—	—	to	—	—	to	—	—	to	—					
Price of Tallow.																					
St. James's Market	—	4	3½	4	2½	4	5	4	5	4	5	4	5½								
Clare Market	—	4	3	4	2½	4	4	4	4	4	4	4	4½								
Whitechapel Market	—	4	3	4	3	4	3½	4	4	4	4	4	5								
Per stone of 8lb. Average	—	4	3	4	2½	4	4	4	4	4	4½	4	5								
Town Tallow	—	73	6	71	6	73	6	74	6	74	6	76	6								
Russia ditto (Candles)	—	74	0	74	0	75	0	75	0	75	0	75	0								
Russia ditto (Soap)	—	69	0	67	0	69	0	70	0	70	0	70	0								
Melting Stuff	—	60	0	58	0	59	0	59	0	59	0	60	0								
Ditto rough	—	42	0	40	0	42	0	42	0	42	0	42	0								
Graves	—	16	0	16	0	16	0	16	0	16	0	16	0								
Good Dregs	—	10	0	10	0	10	0	10	0	10	0	10	0								
Yellow Soap	—	78	0	78	0	78	0	78	0	78	0	78	0								
Mottled ditto	—	86	0	86	0	86	0	86	0	86	0	86	0								
Curd ditto	—	99	0	90	0	90	0	90	0	90	0	90	0								
Candles, per dozen,	—	12	0	11	0	11	0	11	0	11	0	11	0								
Moulds	—	13	0	12	0	12	0	12	0	12	0	12	0								

LONDON PRICES OF GRAIN for Feb. & March, 1803.

MARK-LANE, Monday, February 28.

Our supply of Wheat this day being but moderate, and the buyers pretty numerous, that article maintained last week's prices. We have a large quantity of Barley, and which, with Malt, are both cheaper. We have likewise plenty of Oats, but rather a scarcity of fine samples; the sales are dull. There is a good supply of Flour in town, and which is rather cheaper.

Price of Grain, on board Ship, as under

Wheat	4:8to 58s	Malt	40s to 44s od	Grey Peas	30s to 33s od
Fine	59s to 60s od	Oats	14s to 18s	Small Beans	31s to 35s 6d
Rye	32s to 35s	Polands	20s to 21s 6d	Ticks,	28s to 33s od
Barley	20s to 24s 6d	White Peas	33s to 39s		

Monday, March 7.—Owing to great arrivals, a general depression has taken place in the price of all Grain at this market. Wheat has fallen 2s. per quarter, the supply being so very considerable. Barley and Malt likewise are down, say about 1s. 6d. per quarter. English Oats, from an extraordinary abundance, are also lower. It is, however, to be remarked, that some few very prime samples of each sort of Grain, obtained good prices. Tick Beans are 3s. and 4s. per quarter cheaper. Small ditto not quite so much. White and Grey Peas partake of the general decline, and are 2s. per quarter lower.

Wheat	43s to 56s	Barley	20s to 25s od	White Peas	31s to 38s
Fine	57s to 58s od	Malt	40s to 44s od	Grey Peas	28s to 31s od
Rye	32s to 34s od	Oats	13 to 19s	Sm. Beans,	30s to 35s od
		Polands ditto	20s to 21s od	Ticks,	25s to 30s od

Monday, March 14.—In consequence of the sudden change in the aspect of public affairs, and the stagnation of water carriage, owing to the impress for seamen, our supply of Grain for this day's market was rather short. Hence Wheats have advanced from 4s. to 5s. per quarter since last Monday. Barley and Malt may likewise be stated at 2s. per quarter dearer. Oats are alike on the rise, and from 1s. to 2s. per quarter higher. Fine White Peas 4s. and 5s. dearer. Beans of both sorts also higher. Flour is getting up, say 2s. per sack.

Wheat	46s to 62s	Malt	43s to 48s od	White Peas	33s to 45s od
Fine	63s to 64s 6d	Oats	16s to 21s	Grey Peas	31s to 34s 6d
Rye	33s to 36s	Polands	22s to 23s 6d	Sm. Beans,	32s to 36s
Barley	24s to 28s 6d			Ticks	28s to 33s 6d

Monday, March 21.—Our supply of Wheat to-day, though not great, furnished no inducement to the Millers to become buyers, and prime samples sold at 2s. and 3s. per quarter lower than last Monday. Inferior sorts experienced a more material depression. Without an useless employment of words, ALL GRAIN WAS CHEAPER. Barley, say 1s. and 2s. Peas 3s. and 4s. per quarter, with Oats and Beans, which were likewise on the decline. Flour a heavy sale, at last week's prices.

Wheat	44s to 60s	Malt	40s to 45s 6d	Grey Peas	30s to 33s od
Fine	61s to 62s od	Oats	15s to 20s	Small Beans	32s to 36s od
Rye	32s to 33s od	Polands ditto	21s to 22s od	Ticks,	28s to 32s od
Barley	21s to 26s od	White Peas	42s to 48s od		

Monday, March 28.—Our supplies of Grain to-day have been very large, and Wheat has fallen full 3s. per quarter since last Monday. Barley and Malt are likewise cheaper, say 1s. and 1s. 6d. per quarter. Oats are a brisk sale, and have experienced but little reduction. Fine samples for seed are, as usual at this season, dearer in proportion than the ordinary sorts. Peas and Beans are lower. Flour is 2s. per sack cheaper.

Wheat	44s. to 59s.	Malt	41s. to 45s.	Grey Peas	30s. to 33s.
Fine	60s. to 62s.	Oats	13s. to 19s.	Small Beans	30s. to 34s
Rye	32s. to 35s.	Polands ditto	20s. to 21s. 6d.	Ticks	26s. to 30s.
Barley	21s. to 25s. 6d.	White Peas	38s. to 46s. 6d.		

BANKRUPTCIES AND DIVIDENDS,

Announced between the 20th of February, and the 20th of March, 1803.

BANKRUPTCIES.

The Solitors' Names are between Parentheses.

ARKINSTALL, Henry, and Samuel George, Burllem, potters. (Willington and Small, Temple)

AYRES, Nicholas, Liverpool, dealer. (Martin, Newcastle under Lyce)

BAILEY, Joseph, late of Croom's Dabrot, now of Updon upon Severn, builder and carpenter. (Watts, Symond's inn)

BARKER, John, Fieldhead, Cable Sowerby, woodmonger. (Clennell, Staple's inn)

BALLANTINE, Thomas, Tiverton, innholder. (Batten and Anlack, Temple)

BOURNE, Herbert, St. James's street, silk-merc. (Scnier, Charles street, Covent Garden)

BEVAN, Thomas, Havfordwell, shopkeeper. (Gabel, Lincoln's inn)

BROWN, Thomas, junior, Wigmour street, baker. (Mills, Ely place)

BOOTHMAN, William, Liverpool, broker. (Blackrock, Temple)

CROFTLEY, William, Manchester, cotton manufacturer. (Malins and Parry, Temple)

CLEMENT, Joseph, Plymouth Dock, vintner. (Mayow, Gray's inn)

COOPER, John, senior and junior, Severn, coopers, turners, &c. (Poole, Sergeant's inn, Chancery lane)

CLEMENTS, Robert, late of Half-moon street, Bishopgate, now of Fockham Gap, calico and muslin dyer. (Langham, Bartlett's buildings)

GREEN, John, Reading, meatman. (Dyneley and Sons, Gray's inn)

GOSFINE, John Florian, and Elizabeth Johnston, St. Mary Axe, merchants. (Oakley, New London street)

GIBBONS, John, and William Sherwood (John Gibbons and Co.) Liverpool, merchants. (Leigh, Liverpool)

HITCHEN, William, Liverpool, merchant. (Blackstock, Temple)

HARTON, Thomas, Bishopwearmouth, merchant. (Blackstock, Symond's inn)

HURD, William, York, merchant and taylor. (Allen and Kiley, Furnival's inn)

HARRIS, Timothy, Waltham Holy Cross, pin-maker. (Jeffs, Waltham Abbey)

HARKER, Daniel, Wincobomb, soap-boller. (Edmunds and Son, Exchange Office, Lincoln's inn)

HUNT, Thomas, Leather lane, hardwareman. (Fitzgerald, Lemon-street)

JAMES, Samuel, St. Philip and Jacob, Bristol, pawnbroker. (Lawrence, Bristol)

INGHIS, James, late of Billiter square, London, but now of Jamaica, merchant. (Forbes, Ely place)

JAMES, Robert, late of Size lane, London, now of Tobago, merchant. (Chippendale, Temple)

JOGGETT, William Peter, Bridgewater square, and Kemp's row, Chelsea, merchant. (Kernot, Carey street)

JONES, David, Newbury, horse-dealer. (Edmunds and Son, Exchange Office, Lincoln's inn)

KILSHAW, John, Liverpool, merchant. (Blackstock, Temple)

LEITH, Andrew, shoe lane, smith. (Bolton, Savage, and Spake, Temple)

MALONE, Patrick, Manchester, shoemaker. (Foulkes, Bury place, Bloomsbury)

MACAULAY, John, Liverpool, merchant. (Blackstock, Temple)

MARTIN, George, Suffolk street, Charing Cross, watchmaker. (Jones and Green, Salisbury square)

MORPHEW, William, Rotherfield, dealer in corn. (Wilfon, and Broad, Union street, Southwark)

NICOL, James Gaverin, Goldsmith row, Hackney road, bricklayer. (Ashfield, High street, Shadwell)

PEACOCK, Joseph Allen, Broad street, Ratcliffe, cheese-monger. (Burt, Gould square, Crutcher Friars)

PARDON, William, Clement's lane, St. Clement's Danes, ivory-turner. (Poole, Sergeant's inn, Chancery lane)

PARKER, John, Soebury, mercer and draper. (Clarke and Pardon, Bewdly)

REDITH, John, Sutton, near Frodsham, cornfactor. (Lecke, Chester)

READ, Edmund, Newcastle, miller. (Atkinson, Chancery lane)

RICHARDSON, John, Pocklington, sheep jobber. (Lambert, Hutton Garden)

RUFFELHEIM, Sander, Goulstone square, merchant. (Howe and Jewry street)

STOCK, Thomas, Broadway, Worcester, butcher. (Smart, Staple's inn)

SHALLCROSS, Stephen, and Robert Barnes, Manchester, cotton-manufacturers. (Edge, Manchester)

SALIS, James, Liverpool, broker. (Blackstock, Temple)

SPALING, Henry, Metfield, grocer. (Lyon and Collyer, Bedford row)

SIMPSON, William, Clement's lane, merchant and insurance broker. (Wadefon, Barlow, and Grovesnor, Austin Friars)

SHEPARD, Joseph, Bristol, hofier. (Blackford and Sweet, Temple)

TENCH, John, jun. Tokenhouse yard, merchant. (Lany, Great Freetot street)

VICKERS, Robert, Liverpool, merchant, surviving partner of Nicholas Vickers (Watt and Forreth, Liverpool)

WIGFIELD, James, jun. Northallerton, mercer and grocer. (Evans, Furnival's inn)

WOOD, William, Charlton street, Fitzroy square, cordwainer. (Davison, Clement's inn)

WRIGHT, John, Lamb street, Spitalfields, cheese-monger. (Redd, Cooke's court, Carey street)

WHITBY, Robert, Manchester, cotton-spinner. (Edge, Temple)

WHITE, Thomas, junior, Stroud, Ken's, coal merchant. (Townshend and Russell, High street, Southwark)

WITKE, Christian John Adam, Witke and Co. Coleman street. (Livingston, Fenchurch buildings)

WINTER, Thomas, Brewer street, optician. (Sparks and Winter, Temple)

DIVIDENDS ANNOUNCED.

BRADBURY, Samuel, Basinghall street, broker, March 25

BOLTON, A. J. St. Martin's lane, upholster, April 9

BROWNE, R. Adam's court, Broad street, merchant, April 12

BARNLEY, John, and Joseph Smith, St. John in Bedwardine Morocco-innoc-manufacturer, April 7

BOTTOMLEY, Thomas, Liverpool, linen draper, April 7

BUTLER, George, Manchester, fustian manufacturer, April 12

CARTER, Rob. rt., William, linen draper, April 2

COLLIHAY, Charles, Ashbourne, grocer, April 26

CLIFFIELD, Edward, Grafton street, Soho, woollen-draper, March 12

DOWLEY, Thomas, Sunderland, ship-owner, March 19

ELLIOT, George, and George Pickard, Wood street, velvet-ribbon-manufacturers, &c. May 7

GRATING, Joseph, Uxbridge, broker, April 5

GAMBLE, Thomas, jun. Leicester, woolcomber, March 21

GILMOUR, Robert, Lyon's inn, infirmer, March 19

HILL, John, Maidstone, glaze-seller, March 29 and April 5

HOPWOOD, David, Union street, Mary-le-bonne, grocer, March 12

HAWORTH, Edmund, Millhill, John Haworth, Hampstead, and Jonathan Haworth, Ardwick, calico-printers, &c. April 11

JAMES, ——— Manchester, muslin manufacturer, March 10

KING, James and Joseph, Newcastle, potters, separate estate of James, March 21

KINDON, John, Bristol, cabinet-maker, April 9

LACK, John, South Creak, shopkeeper, April 5

LEACH, James Alkew, Jewry street, wine merchant, April 11

LINIKER, John, Liverpool, woollen-draper, April 20

MANFON, Thomas, Tokenhouse yard, merchant, March 19

MINIHE, Charles, Exeter, talow-chandler, &c. March 25

MALCOM, Samuel, Old Broad street, broker, April 23

MCHENRY, B. street on Avon, mercer, April 9

MITCHILL, Thomas, Hutton court, merchant, April 10

NEAVE, Thomas and Moses, Bickton, millers, &c. April 13

POTTER, William, Bath, upholster, March 15

PAINE, Edward, Fenchurch, wax-chandler, April 15

ROWLAND, Edward, Canebrookdale, barge owner, April 25

ROCHLETER, Thomas, Canterbury row, coal merchant, April 10

STREATOR, W. Billingham, miller, April 4

SADLER, John, Birmingham, grocer, April 9

UNDERWOOD, John, Great Marlborough street, apothecary, April 23

WOLFEHOLME, Dean, junior, Waltham Cross, inn-holder, March 12

WALTER, William Waterly, Deptford, miller, March 12

WHARTY, John, Bankside, colour manufacturer, April 26

WILD, James, Hulme place, brewer, April 13

WATSON, William Hill, Watchchurch, scrivener, April 26

AVERAGE PRICES OF CORN, by the quarter of eight Winchester bushels; and of OATMEAL, per boll, of 140 pounds Avoirdupois.

From the Returns received in the Week, ended MARCH 19, 1803.

INLAND COUNTIES.

COUNTIES.	Wheat.		Rye.		Barley.		Oats.		Beans.		Peas.		Oatmeal.	
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
Middlesex	60	5	38	3	25	9	23	6	32	3	38	7		
Surrey	61	0	32	0	25	3	21	11	34	0	37	6		
Hertford	54	4	35	6	25	0	20	10	36	0	38	6		
Bedford	52	1	31	7	23	1	19	9	28	1	41	2		
Huntingdon	49	0			21	8	16	4	24	10	35	1		
Northampton	52	10	29	0	22	10	17	8	27	6	30	0		
Rutland	54	6			22	0	18	0	28	0			57	3
Leicester	55	1			22	4	17	6	29	2	30	2	33	9
Nottingham	61	8	35	0	26	4	20	0	31	0				
Derby	62	5			27	4	20	6	37	8	34	9	19	1
Stafford	60	3			25	8	20	3	35	4			28	2
Salop	56	5	38	8	24	6	19	11	40	10	38	10	31	9
Hereford	51	8	32	0	23	7	21	1	35	8	33	7	60	11
Worcester	53	4	29	0	24	1	23	1	33	9	39	6		
W. rwick	58	11			24	8	20	2	35	1	41	0	38	2
Wilts	56	6			23	0	19	8	37	0	36	0		
Berks	58	7			23	3	21	10	32	6	35	9		
Oxford	55	7			20	7	19	3	30	10	34	1		
Bucks	53	3			22	3	20	6	30	6	38	0		
Brecon	53	10	32	0	25	4	16	0			28	1	32	2
Montgomery	54	4			22	5	16	0			32	10	38	2
Radnor	51	4			23	7	18	10			31	1	60	6

Maritime Counties.

Essex	57	2	33	0	25	3	24	8	31	1	28	9		
Kent	57	10			25	6	22	0	31	1	34	0		
Suffex	52	0			25	0	21	4	32	0				
Suffolk	54	2			22	0	19	1	26	10	33	9	47	11
Cambridge	47	10	33	6	20	9	13	11	25	3	32	2		
Norfolk	53	3	37	3	21	2	17	3	27	3	31	7		
Lincoln	53	5	35	6	23	2	15	10	29	0	34	6		
York	54	4	39	4	24	7	16	8	30	5	58	8	35	7
Durham	56	3	30	8	27	4	19	8						
Northumberland	51	0	40	0	20	10	17	10	35	0			13	4
Cumberland	63	4	52	0	28	2	22	1					17	6
Westmorland	70	1	51	2	29	6	22	9					18	0
Lancaster	63	2			26	8	21	11	38	9	50	0	17	6
Chester	55	4			25	3	18	7	43	4	54	0	16	11
Flint	63	1			30	7	16	0						
Denbigh	59	5			28	5	17	7	41	8	41	8	33	1
Anglesea					20	0	14	0						
Carnarvon	61	4	42	0	26	0	15	0					32	6
Merioneth	65	9	48	0	27	4	19	4			40	0	33	10
Cardigan	61	2			21	1	11	0						
Pembroke	48	7			22	0	12	8						
Carmarthen	55	8			21	0	13	6						
Glamorgan	55	2			21	4	15	10						
Gloucester	56	7			22	4	18	0	31	4	32	0		
Somerset	54	6			22	9	18	2	30	2	34	8		
Monmouth	56	12			23	8	18	8						
Devon	59	3			21	7	15	11						
Cornwall	59	6			21	9	16	2						
Dorset	56	7			21	8	20	0	40	0				
Hants	53	11			22	2	22	0	34	3				

**PRICES OF COALS AT THE COAL EXCHANGE, LONDON,
For MARCH, 18c3.**

Names of Coals.	Mon. 7th. s. d.	Wed. 9th s. d.	Frid. 4th s. d.	Mond. 14th s. d.	Wed. 16th s. d.	Frid. 18th s. d.	Mond. 21st. s. d.	Wed. 23d s. d.	Frid. 25th s. d.	Mond. 28th s. d.	Wed. 30th s. d.
Adair's Main	38 6										
Allen's											
Allerton											
Baker's Main											
Bedford Main											
Benton	39	46		47 3				43			43
Beamish So. Moor											
Benwell											
Biddick Main			44								
Bigg's Main			49	48 6	47						
Blackfell											
Bladon Main											
Blyth		44 6						41 6			40
Boundry											
Bourn Moor	37 6		45	45			40	39	40	40	
Bowes Main											
Brandling			48								
Byker											
Byker, High & Low											
Cowpen	39 3	45									
Dewsbury Main											
Eden Main		44 6			45		40	39	40	40	40
Flockton											
Greenwich Moor											
Haraton											
Hartley											
Heaton Main	41	46					43	48 6	43	43 6	44
Hebburn Main		47		48 6	47		44	43	43 6	44	44
Holywell			45 6								
Hutton Main											
Kenton Main											
Lambton's Low dit.											
Marley Hill											
Methley Park											
Montague Main								41	40 6		41
Mount Moor											
Newbottle										39 6	
Old Ducks											
Pitt's Tansfield M.								40 6			
Primrose											
Reclory							38 6	37 9			
Ruffel's Main	37 6							38 6			
Simpson's Pontop				46				39 9			
Silver Tops	39										
Sheriff Hill											
South Moor											
Stanley Main			45							40	39 6
St. David											
Team											
Toft Moor											
Tyne Main											
Usworth Main											
Walbottle Moor											
Walker											
Wall's End	41	64 6	50	49 6	48		45 2	43 6	44 6	43 6	45
Wharton											
Willington		47 3	48 6		48						
Windfor's Pontop											
Windfor's Tandf. M.											
Wylam Moor											
Wentworth											
Whitefield											
Wooler Main											

A TABLE of the Prices of STOCKS in *March, 1803.*

Days	Bank Stock.	per Ct. Red.	per Ct. Contols.	per Ct. Contols.	per Ct. Navy.	per Ct. Loyalty	Long Ann.	Short Ann.	Imp. per Ct.	Imp. Ann.	India Stock.	Omnium. diff.	Excheq. Bills.	Contols for Act.	Tickets.
Feb. 26	189	71 $\frac{1}{2}$	71	88 $\frac{1}{2}$	101 $\frac{1}{2}$	104 $\frac{1}{2}$	20 11-16	4 9-16	70	11 $\frac{1}{2}$	215 $\frac{1}{2}$	3 $\frac{1}{2}$	1 2 dif.	72 $\frac{1}{2}$	17 17
March 1	189 $\frac{1}{2}$	71 $\frac{1}{2}$	71 $\frac{1}{2}$	88 $\frac{1}{2}$	101 $\frac{1}{2}$	104 $\frac{1}{2}$	20 $\frac{1}{2}$	4 9-16	70 $\frac{1}{2}$	11 $\frac{1}{2}$	215 $\frac{1}{2}$	3 $\frac{1}{2}$	par 1 dif.	72 $\frac{1}{2}$	17 17
2	190	71 $\frac{1}{2}$	71 $\frac{1}{2}$	88 $\frac{1}{2}$	101 $\frac{1}{2}$	104 $\frac{1}{2}$	20 13-16	4 9-16	70 $\frac{1}{2}$	11 $\frac{1}{2}$	216 $\frac{1}{2}$	4 $\frac{1}{2}$		72 $\frac{1}{2}$	17 17
3	193	71 $\frac{1}{2}$	71 $\frac{1}{2}$	88 $\frac{1}{2}$	101 $\frac{1}{2}$	104 $\frac{1}{2}$		4 9-16	70 $\frac{1}{2}$	11 $\frac{1}{2}$	221 $\frac{1}{2}$	3 $\frac{1}{2}$		72 $\frac{1}{2}$	17 17
4		71 $\frac{1}{2}$	71 $\frac{1}{2}$	88 $\frac{1}{2}$	101 $\frac{1}{2}$	104 $\frac{1}{2}$		4 9-16	70 $\frac{1}{2}$	11 $\frac{1}{2}$	221 $\frac{1}{2}$	3 $\frac{1}{2}$		72 $\frac{1}{2}$	17 17
5		71 $\frac{1}{2}$	71 $\frac{1}{2}$	88 $\frac{1}{2}$	101 $\frac{1}{2}$	104 $\frac{1}{2}$		4 9-16	70 $\frac{1}{2}$	11 $\frac{1}{2}$	221 $\frac{1}{2}$	3 $\frac{1}{2}$		72 $\frac{1}{2}$	17 17
6		71 $\frac{1}{2}$	71 $\frac{1}{2}$	88 $\frac{1}{2}$	101 $\frac{1}{2}$	104 $\frac{1}{2}$		4 9-16	70 $\frac{1}{2}$	11 $\frac{1}{2}$	221 $\frac{1}{2}$	3 $\frac{1}{2}$		72 $\frac{1}{2}$	17 17
7		71 $\frac{1}{2}$	71 $\frac{1}{2}$	88 $\frac{1}{2}$	101 $\frac{1}{2}$	104 $\frac{1}{2}$		4 9-16	70 $\frac{1}{2}$	11 $\frac{1}{2}$	221 $\frac{1}{2}$	3 $\frac{1}{2}$		72 $\frac{1}{2}$	17 17
8		71 $\frac{1}{2}$	71 $\frac{1}{2}$	88 $\frac{1}{2}$	101 $\frac{1}{2}$	104 $\frac{1}{2}$		4 9-16	70 $\frac{1}{2}$	11 $\frac{1}{2}$	221 $\frac{1}{2}$	3 $\frac{1}{2}$		72 $\frac{1}{2}$	17 17
9		71 $\frac{1}{2}$	71 $\frac{1}{2}$	88 $\frac{1}{2}$	101 $\frac{1}{2}$	104 $\frac{1}{2}$		4 9-16	70 $\frac{1}{2}$	11 $\frac{1}{2}$	221 $\frac{1}{2}$	3 $\frac{1}{2}$		72 $\frac{1}{2}$	17 17
10		71 $\frac{1}{2}$	71 $\frac{1}{2}$	88 $\frac{1}{2}$	101 $\frac{1}{2}$	104 $\frac{1}{2}$		4 9-16	70 $\frac{1}{2}$	11 $\frac{1}{2}$	221 $\frac{1}{2}$	3 $\frac{1}{2}$		72 $\frac{1}{2}$	17 17
11		71 $\frac{1}{2}$	71 $\frac{1}{2}$	88 $\frac{1}{2}$	101 $\frac{1}{2}$	104 $\frac{1}{2}$		4 9-16	70 $\frac{1}{2}$	11 $\frac{1}{2}$	221 $\frac{1}{2}$	3 $\frac{1}{2}$		72 $\frac{1}{2}$	17 17
12		71 $\frac{1}{2}$	71 $\frac{1}{2}$	88 $\frac{1}{2}$	101 $\frac{1}{2}$	104 $\frac{1}{2}$		4 9-16	70 $\frac{1}{2}$	11 $\frac{1}{2}$	221 $\frac{1}{2}$	3 $\frac{1}{2}$		72 $\frac{1}{2}$	17 17
13		71 $\frac{1}{2}$	71 $\frac{1}{2}$	88 $\frac{1}{2}$	101 $\frac{1}{2}$	104 $\frac{1}{2}$		4 9-16	70 $\frac{1}{2}$	11 $\frac{1}{2}$	221 $\frac{1}{2}$	3 $\frac{1}{2}$		72 $\frac{1}{2}$	17 17
14		71 $\frac{1}{2}$	71 $\frac{1}{2}$	88 $\frac{1}{2}$	101 $\frac{1}{2}$	104 $\frac{1}{2}$		4 9-16	70 $\frac{1}{2}$	11 $\frac{1}{2}$	221 $\frac{1}{2}$	3 $\frac{1}{2}$		72 $\frac{1}{2}$	17 17
15		71 $\frac{1}{2}$	71 $\frac{1}{2}$	88 $\frac{1}{2}$	101 $\frac{1}{2}$	104 $\frac{1}{2}$		4 9-16	70 $\frac{1}{2}$	11 $\frac{1}{2}$	221 $\frac{1}{2}$	3 $\frac{1}{2}$		72 $\frac{1}{2}$	17 17
16		71 $\frac{1}{2}$	71 $\frac{1}{2}$	88 $\frac{1}{2}$	101 $\frac{1}{2}$	104 $\frac{1}{2}$		4 9-16	70 $\frac{1}{2}$	11 $\frac{1}{2}$	221 $\frac{1}{2}$	3 $\frac{1}{2}$		72 $\frac{1}{2}$	17 17
17		71 $\frac{1}{2}$	71 $\frac{1}{2}$	88 $\frac{1}{2}$	101 $\frac{1}{2}$	104 $\frac{1}{2}$		4 9-16	70 $\frac{1}{2}$	11 $\frac{1}{2}$	221 $\frac{1}{2}$	3 $\frac{1}{2}$		72 $\frac{1}{2}$	17 17
18		71 $\frac{1}{2}$	71 $\frac{1}{2}$	88 $\frac{1}{2}$	101 $\frac{1}{2}$	104 $\frac{1}{2}$		4 9-16	70 $\frac{1}{2}$	11 $\frac{1}{2}$	221 $\frac{1}{2}$	3 $\frac{1}{2}$		72 $\frac{1}{2}$	17 17
19		71 $\frac{1}{2}$	71 $\frac{1}{2}$	88 $\frac{1}{2}$	101 $\frac{1}{2}$	104 $\frac{1}{2}$		4 9-16	70 $\frac{1}{2}$	11 $\frac{1}{2}$	221 $\frac{1}{2}$	3 $\frac{1}{2}$		72 $\frac{1}{2}$	17 17
20		71 $\frac{1}{2}$	71 $\frac{1}{2}$	88 $\frac{1}{2}$	101 $\frac{1}{2}$	104 $\frac{1}{2}$		4 9-16	70 $\frac{1}{2}$	11 $\frac{1}{2}$	221 $\frac{1}{2}$	3 $\frac{1}{2}$		72 $\frac{1}{2}$	17 17
21		71 $\frac{1}{2}$	71 $\frac{1}{2}$	88 $\frac{1}{2}$	101 $\frac{1}{2}$	104 $\frac{1}{2}$		4 9-16	70 $\frac{1}{2}$	11 $\frac{1}{2}$	221 $\frac{1}{2}$	3 $\frac{1}{2}$		72 $\frac{1}{2}$	17 17
22		71 $\frac{1}{2}$	71 $\frac{1}{2}$	88 $\frac{1}{2}$	101 $\frac{1}{2}$	104 $\frac{1}{2}$		4 9-16	70 $\frac{1}{2}$	11 $\frac{1}{2}$	221 $\frac{1}{2}$	3 $\frac{1}{2}$		72 $\frac{1}{2}$	17 17
23		71 $\frac{1}{2}$	71 $\frac{1}{2}$	88 $\frac{1}{2}$	101 $\frac{1}{2}$	104 $\frac{1}{2}$		4 9-16	70 $\frac{1}{2}$	11 $\frac{1}{2}$	221 $\frac{1}{2}$	3 $\frac{1}{2}$		72 $\frac{1}{2}$	17 17
24		71 $\frac{1}{2}$	71 $\frac{1}{2}$	88 $\frac{1}{2}$	101 $\frac{1}{2}$	104 $\frac{1}{2}$		4 9-16	70 $\frac{1}{2}$	11 $\frac{1}{2}$	221 $\frac{1}{2}$	3 $\frac{1}{2}$		72 $\frac{1}{2}$	17 17
25		71 $\frac{1}{2}$	71 $\frac{1}{2}$	88 $\frac{1}{2}$	101 $\frac{1}{2}$	104 $\frac{1}{2}$		4 9-16	70 $\frac{1}{2}$	11 $\frac{1}{2}$	221 $\frac{1}{2}$	3 $\frac{1}{2}$		72 $\frac{1}{2}$	17 17
26		71 $\frac{1}{2}$	71 $\frac{1}{2}$	88 $\frac{1}{2}$	101 $\frac{1}{2}$	104 $\frac{1}{2}$		4 9-16	70 $\frac{1}{2}$	11 $\frac{1}{2}$	221 $\frac{1}{2}$	3 $\frac{1}{2}$		72 $\frac{1}{2}$	17 17

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T. BISH, STOCK-BROKER, *Old State-Lottery Office, No. 4, Cornhill, London.*

TO OUR READERS AND CORRESPONDENTS.

THE Drawing and Description of the Hand Drill, by our obliging Correspondent Agricola Norfolkensis, will, we doubt not, prove highly acceptable to that part of the Agricultural World, to whose use it is particularly adapted, if we may be allowed to suggest an improvement, we would advise the pulley C to be fixed on the axis of the cast iron wheel; the pulley E to be cylindrical, and another pulley of exactly the same dimensions, turning on the axis of the pulley E; now if a slight lever be contrived so as to throw the leather strap from E to the pulley, freely turning on the same axis; it is evident the cylinder with the feed cups would cease to turn, and that the additional pulley would turn round on the axis of the feed cups till the strap move by the lever again thrown upon the pulley E. This idea of stopping a rotative motion is not new, we therefore claim no merit for mentioning it, as it is adopted by all manufacturers, whose lathes are turned by steam engines. We think this would simplify the mechanism of the Drill, and should be glad to hear the opinion of Agricola Norfolkensis on the subject.

We were apprehensive we might have unintentionally offended Castor. His kind communication has, however, relieved us from that apprehension, and we again beg to repeat, that we shall ever esteem ourselves highly obliged to him for the favor.

The Norfolk Farmer's future communications will ever readily find a place in this Magazine, and we shall at the same time think ourselves highly obliged to him for the favor.

A Farmer's Observation on the Row-Culture, will, we doubt not, meet with attention from Agricola Norfolkensis. The Farmer is a strenuous advocate for the particular system, which he seems to have pursued with success, and we therefore presume all his conclusions are drawn from actual practice.

The observations of Juvenis, on South Down Sheep, are such as merit the attention of our Readers. If we may be allowed to give our opinions on the subject of Dr. Wilkinson's Letter, we should (from the Doctor's well known agricultural abilities) imagine the whole to be a mere error in writing.

We are sorry that through the inattention of our Engraver, the plate of Darwyn's Drill Plough was not finished in time for our last Number, we have taken every care to have it done as completely as possible, assuring our Readers, that it will be our future study to avoid a similar omission.

Remarkable Trials.

ON SATURDAY, APRIL 30, WILL BE PUBLISHED
(PRICE ONE SHILLING),

No. I.

EMBELLISHED WITH A FINE PORTRAIT OF LORD ELDON,
(TO BE CONTINUED MONTHLY) OF THE

MONTHLY MAGAZINE

OF

Remarkable Criminal Trials,

ACTIONS AT LAW,

AND OTHER LEGAL DECISIONS;

WITH

Full and Circumstantial Details of the Arguments of Counsel, Examinations of Witnesses, and Charges of the Judges, in every

Interesting Cause

which comes before any of the Courts in the United Kingdom.

Amongst others will be found those for

MURDER, (Extraordinary)	0	DEFAMATION, { <i>or Scandalum</i>
ROBBERY, (Atrocious)	0	0 <i>Magnatum,</i>
FORGERY,	0	0 PROMISE OF MARRIAGE,
CRUELTY,	0	0 SWINDLING,
CORRUPTION OF MORALS,	0	0 WARRANTY,
PERJURY,	0	0 LITERARY PIRACY,
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The Town Department under the immediate Direction of

WILLIAM MORTON MEDLAND, ESQ.,

The Country Department revised by

CHARLES WEOBLY, STUDENT IN LAW.

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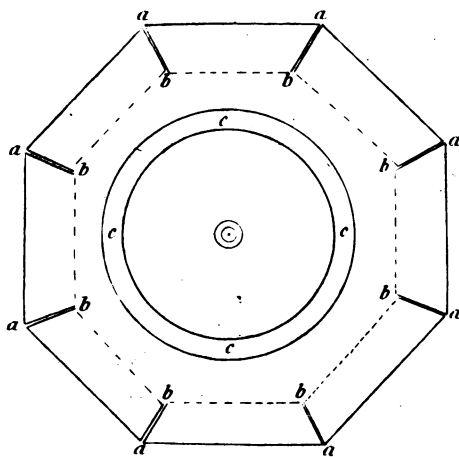
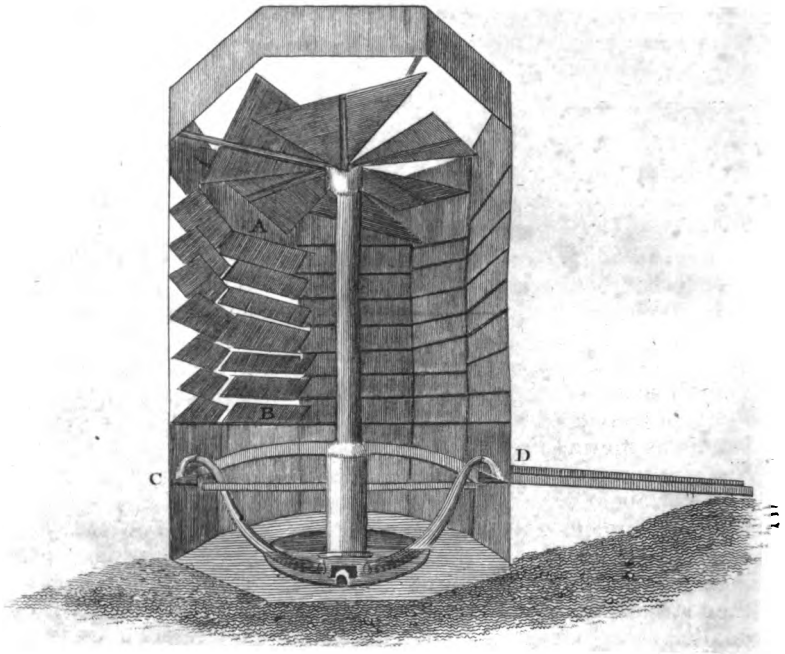
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No. XLV.]

APRIL, 1803.

[Vol. VIII,

DESCRIPTION OF A MACHINE FOR RAISING WATER A FEW FEET HIGH BY THE POWER OF THE WIND, FOR THE PURPOSE OF DRAINING MORASSES, OR OF WATERING LANDS ON A HIGHER LEVEL.

Copied by Permission, from Dr. Darwin's Phytologia.

THE Plate accompanying this Number, represents a Windmill sail, placed horizontally like that of a Smoak-jack, surrounded by an octagon tower; the diverging rays of this tower, *a b, a b*, may consist of two-inch deals only, if on a small scale, or of brick-work, if on a larger one. These upright pillars are connected together by oblique horizontal boards as shewn at *A B*, by which boards placed horizontally from pillar to pillar, in respect to their length, but at an angle of about 45 degrees in respect to their breadth, so as to form a complete octagon including the horizontal windmill sail near the top of it; the wind as it strikes against any of them, from whatever quarter it comes, is bent upwards and then strikes against the horizontal wind-sail. These horizontal boards; which form the sides of the octagon, may either be fixed in their situation, or be made to turn upon an axis a little below their centres of gravity, so as to close themselves on that side of the octagon tower most distant from the wind.

It may be supposed that the wind thus reflected would lose considerably of its power before it strikes on the wind-sail, but on fixing a model of such a machine on the arm of a long whirling lever, with proper machinery to count the revolutions of the wind sail, when thus included in a tower and moving horizontally; and then when moved vertically as it was whirled on the arm of the lever with the same velocity, it was found on many trials by Mr. Edgeworth, of Edgeworth Town, in Ireland, and by myself, that the wind by being thus reverted upwards by a fixed planed board did not seem to lose any of its power. And as the height of the tower may be made twice as great as the diameter of the sail, there is reason to conclude that the power of this horizontal wind-sail may be considerably greater, than if the same sail was placed nearly vertically opposed to the wind in the usual manner.

At the bottom of the shaft of the wind-sail is placed a centrifugal pump with two arms at *C D*, which has been described in mechanical authors. It consists simply of an upright bored trunk, or cylinder of lead, with two opposite arms with

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an adapted valve at the bottom to prevent the return of the water, and a valve at the extremity of each arm to prevent any ingress of air above the current of the water as it flows out.

cccc, is a circular trough to receive the streams of water from C and D, to convey them where required.

ON DRAINING AND WATERING.

By Dr. Darwin.

Lands in respect to the method of draining them may be divided into two situations; those which lie so high, that the water can descend from them, if it be properly collected and conducted; and those which lie so low as to command no fall, some of which are even below the level of the sea.

In regard to the former it generally happens, that the waters from the springs beneath the soil have not a free passage to the rivers in their vicinity; the nature of springs should therefore be previously understood. Many modern philosophers have endeavoured to shew, that all the continents and islands of the world, as well as the hills, which emboss their surface, have been raised out of the primeval ocean by subterraneous fires. This appears from the quantity of sea-shells, which form innumerable mountains; and from the fissures in the rocks, of which they consist; the quantity of volcanic productions all over the world; and the numerous remains of craters of volcanoes in mountainous countries.

Hence the strata, which compose the sides of mountains, lie slanting downwards; and one or two or more of the external strata not reaching to the summit, when the mountain was raised up, the second or third stratum, or a more inferior one, is there exposed to day. This may be well represented by forcibly thrusting a very blunt instrument through some folds of paper, a bur will be raised with the lowermost leaf standing highest in the center of it. Or if at the original elevation of an extensive mountain the lowest stratum should not at first stand higher in the center of the summit, it would in time become so by some of the upper strata of the mountain being gradually washed away by rains into the valleys or rivers. On this uppermost stratum, which is colder, as it is more elevated, the dews are condensed in large quantities; and sliding down pass under the first, or second, or third stratum, which compose the sides of the hill; and either form a morass below, or a weeping rock by oozing out in numerous places; or many of these less currents meeting together burst out in a more copious rill.

The immediate cause of springs consists therefore in the condensation of the atmospheric moisture, during the night principally, by the greater coldness of the summits of hills.

The water thus condensed on the summits of hills descends between the strata of the incumbent soil, sometimes for many miles together; but generally from the nearest eminences into the adjoining vallies.

Thus there is a stratum of marl on the surface of the lands about Derby, which extends many miles in most directions. This stratum of marl is of various thickness from 10 to 150 feet, and beneath it lies a stratum of sand, which is also of various thickness from a few inches to six or eight feet, and of various degrees of duration; and beneath this lies another stratum of marl to an unknown depth. On the top of Radborne common, about five miles north-west from Derby, the sandy stratum is quite loose, and rises above the stratum of marl, which is deficient at the summit of the hill. Three or four strong springs of water burst out on the sides of this hill, which thus originate from the moisture of the atmosphere condensed on the cold summit, and passing through the sandy stratum between the two strata of marl.

In the road to Duffield, about two miles north of Derby, the sand-stratum is cemented into stone, as well as in some situations near Radborne-common above mentioned. This stratum of sand-stone is some feet in thickness, and lies four or five yards deep, beneath the upper stratum of marl, dividing it from the lower one. At Normanton, about two miles south from Derby, the sand-stratum consists of a loose sand, so white and pure, that it is imagined it might be used in the manufacture of flint-glass, and lies about twelve feet deep, beneath the upper stratum of marl, dividing it from the under one. In the town of Derby on boring with design to sink a well, after having passed about thirteen yards through marl, some sand was brought up by the auger, and water followed. The dews therefore, which are perpetually condensing on the summits of these hills, descend beneath the upper and under strata of marl, through the thin stratum of sand, which divides them, and form St. Alkmund's well, and many other springs in the vicinity of Derby; and probably all those which supply the wells within the town.

But there is a situation, where the manner of the production of springs is most agreeably visible; it is about a mile from the city of Lichfield, near the cold bath erected by John Floyer, in a beautiful piece of ground, which was formerly Dr. Darwin's botanic garden.

In this place a grotto about six yards wide and ten long has been excavated on the side of a hill consisting of siliceous sand-stone with this peculiar circumstance; that the upper stratum of the sand-rock, which is there about five feet thick, is divided from the lower stratum of it by a sheet of clay not more than three or four inches in thickness; on the upper sur-

face of this sheet of clay, between the lips of these rocks, a perpetual dribbling of water oozes quite round the grotto, like a shower from a weeping rock. Such sheets of water having been often observed to slide between the strata of the earth almost horizontally, like the horizontal joints of a stone-wall, have, it is supposed, given the name of wall-springs to them, to distinguish them from pipe-springs, or such as burst out in a single rill.

Thus this thin sheet of clay prevents the water from sinking into the lower stratum of sand-stone; and produces other copious springs, which are collected at about half a mile's distance, and conveyed by leaden pipes to the cathedral close of Litchfield, which is thus supplied with water of uncommon purity, which contains no calcareous earth, owing to its passing through siliceous sand over a stratum of clay, and which would be a treasure to the paper-mill or the bleach-yard.

One other circumstance in the present conformation of the earth is necessary to be mentioned; which is, that at the time when the mountains were raised all over the world by deep volcanoes, or by central fires, some parts of the summits of many of them, and of their steeper sides, rolled down again into the new formed vallies. And secondly, that since that remote time the regrements of vegetable and animal bodies have continually been washed down from the eminences by showers, and have contributed gradually to accumulate in the vallies, and to form the plains, which exist on the sides of rivers. This appears from the tin ores found in the vallies in Cornwall, in loose pieces, similar to those in the proximate mountains; and from the black carbonic soil, or morass-turf, found in most vallies.

From these clear ideas of the strata of the earth, and of the streams of water, which slide between them, and form what are termed wall-springs, it is easy to conceive, that the best method of preventing the vallies at the bottom of hills from being too moist must be by cutting a long horizontal ditch into the side of the mountain to intercept the water, just before the level land of the valley commences; and thus to carry away the water before it comes upon the plain beneath.

For this purpose at the foot of the hill, where the plain which is too moist, commences, some auger-holes should be bored to find the depth of the springs, that is to find the thickness of the upper stratum of the soil. If this be only four or six feet, an horizontal ditch should be cut along the bottom of the mountain to intercept the water; which must then be carried away by one or more other ditches opening into this, and conducting the water so collected into the neighbouring rivulet.

As the strata, between which the water descends in forming these springs, have generally the same inclination as the surface of the hill, or nearly so; it follows, that the holes should be bored, and the ditch cut, not vertically downwards, as is the common practice, but perpendicular to the surface of the mountains; as by that means the second stratum will sooner be arrived at.

But if on cutting a ditch five or six feet along the bottom of the hill perpendicular to the rising plain, which forms the side of it, the upper stratum be not cut through; and in consequence no water oozes into the bottom of the ditch; it is then proper to bore other holes at the bottom of this ditch some yards deeper, or till water rises up through them into the ditch, if it can be so discovered. Where this succeeds, many holes should be bored, and the water received into the ditches, and conducted into the adjacent river; for the water will then rise into the bottom of this ditch six feet below the wet surface of the valley, and thus flow away, rather than rise up from the lower wall-springs, or apertures of the stratum, through the incumbent soil to the surface of the valley, which is so many feet higher. This well understood is the great secret for draining those grounds, where the springs can not be cut into simply by a ditch.

This method has been some years practised with success by Mr. Elkington, but was previously used and explained by Mr. Anderson, as he asserts in his introduction to Vol. III. of his *Essays on Agriculture*, who sunk a hole into the earth at the bottom of a ditch in the year 1764, and the water rose six feet above the surface of the ground, and has continued to flow with less violence ever since that time.

It should here be noticed, that where the water rises with great force through holes thus bored into a deep stratum, it is liable to bring up with it much sand, so as sometimes to obstruct its passage; which sand in this case must frequently be removed for a few days by the reapplication of the auger. Of this a remarkable instance is published in a late volume of the *Phil. Trans.* by Mr. Vulliamy, who sunk a well 236 feet deep, and four feet wide; and, on then boring a few feet lower with a five-inch borer, so much sand arose with a violent stream of water, as to fill up the whole well; which was repeatedly cleared away by buckets in its fluid state, and at last the water ran over the surface to the amount of forty-six gallons in a minute.

The manner of making these ditches narrower, as they descend, by spades of an adapted breadth; and of making the lowest part narrower than any other part, so that the shoulders or edges of it may support stones, or faggots, to cover the whole at a small expence without obstructing the currents

of water, are obvious to the workmen. In many situations hollow bricks, or ridge-tiles, or old pieces of plaster-floors, may be worth the additional expence of providing them.

There may nevertheless be found situations, where the first stratum of earth may be too thick to be easily penetrated; or where the water, condensed from the atmosphere on the summits of the hills, may slide between the second and third, or between the third and fourth strata, which form the sides of those hills, owing to a deficiency of so many of the strata at the summits of them; and hence that it may lie too deep to be easily arrested by a ditch, or by boring; and yet by its being dammed up by the materials, which form the level plain of the valley, may rise up through those materials to the surface, and form boggy or morassy ground.

In these situations the common unskillful method of draining may be usefully employed; which consists in cutting many ditches four or six feet deep across the bog or morass; and covering them, so that the water may have no obstruction in passing along them; which may thus, as it rises from below, be in part collected and conveyed away; though less advantageously than where the springs can be intercepted.

There are some situations, where the water is conveyed beneath the first stratum on a thin bed of clay over a porous sand-stone beneath it; as in the grotto at Litchfield above described. In these situations by boring many auger-holes, or by sinking wells, through the stratum of clay the water will penetrate the sand-stone beneath it; and either pass away by the porosity of this kind of stone, or by the cracks or joints which are always found in it; of which the horizontal joints were formed at the time of the production or accumulation of the sand beneath the sea, which was then formed in horizontal strata; but the vertical cracks were made at the time of its elevation by subterraneous fires. In these vertical fissures the ores of lead, ponderous earth, and calcareous spars, are found in the lime-stone rocks of Derbyshire; and those of tin, and quartz, in the granite rocks of Cornwall.

The knowledge of this part of geology concerning the formation of springs may be employed for many useful purposes; thus where the wall-springs, or water-conducting strata, lie so deep as not to be acceptable at a small expence; they generally exist between the second and third, or between the third and fourth strata; which rise into day higher on the adjacent mountains than the first stratum; and hence, when they are bored into, the water will rise higher, than when it is found beneath the first stratum only; which generally becomes deficient on lower parts of the adjacent eminences of the country.

Thus where water, descending in high columns between the strata of mountains, is dammed up below by the materials, which fill up the vallies; if a hole be bored in the valley deep through the incumbent soil and strata, it frequently rises much above the source of the new aperture, and sometimes above the surface of the ground. In sinking the king's well at Sheerness the water rose 300 feet above its source in the well. And at Hartford, in Connecticut, there is a well, which was dug seventy feet before water was found; and then on boring an auger hole through a rock the water rose so fast as to make it difficult to keep it dry by pumps, till the hole could be blown larger by gunpowder; which was no sooner accomplished, than it filled, and run over, and has been a brook for near a century.

In the town of Richmond in Surry, and at Inslip near Preston, in Lancashire, it is usual to bore for water to a certain depth; and that when it is found in both those places, it rises so high as to flow over the surface. And there is reason to conclude, that if similar experiments were made in many other places, such artificial springs might be produced at small expence, both for the common purposes of life, and for the great improvement of lands by watering them.

Another deduction, which may be made from this knowledge of geology, is, that many springs of water, which lie too low for serving a house, or street, or town, or for watering higher grounds for the purposes of agriculture or gardening, may in many situations be dammed up many feet with little or no loss. Thus when the new bridge was building at Dublin, Mr. G. Semple found a spring in the bed of the river, where he meant to lay the foundation of a pier; which by fixing iron pipes into it he raised many feet; and in boring a hole near the Derwent in Derby about fifteen yards deep, the water rose above the surface of the ground, and has continued to flow now for above twelve years in rather an increasing quantity. From having observed a valley north-west of St. Alkmund's well, near Derby, at the head of which that spring of water once probably existed, and by its current formed the valley, (which current in after times found its way out in its present lower situation,) it is suspected, that St. Alkmund's well might by building round it, be raised high enough to supply many streets in Derby with spring water, which are now only supplied with river water.

A third deduction from the knowledge of this geology concerning the production of springs teaches, that by enlarging the bottom of a well, where the water oozes from between the surrounding strata in too scanty a supply, a proportionally greater quantity of water may be procured. The hole near the river Derwent in Derby above mentioned, is about an

inch and a half in diameter, and was bored about fifteen yards deep through the uppermost stratum of marl into the sand beneath it, and supplies Dr. Darwin's house with two or three hogsheads of water a day. And Mr. Strutt, near St. Peter's Bridge, has sunk a well for the use of his steam-engine about 200 yards from the former, which passes through the same upper stratum of marl, and is three feet in diameter at the bottom, and supplies, when required, a hundred hogsheads in a day.

The knowledge of this part of geology leads to another useful purpose, the discovery of springs, concerning which some have pretended to possess secret or mystical intelligence, both in England and in France. When the eminences of a country were raised out of the primeval ocean by subterraneous fires, some of them were raised nearly equally on all sides, like the limestone mountain at Breedon in Leicestershire; in which the central stratum may be seen to stand nearly erect or vertical, and those on all sides at considerable inclination. Other mountains were abruptly broken off on one side only from the adjoining earth, like those which form the high torr at Matlock; which rise with one of their sides perpendicular as a wall by the Derwent side; so that the strata of the former of these mountains may be represented, as before mentioned, by the bur, which would be made on some folds of paper, if a very hard blunt instrument was thrust through them; and the latter by raising up one edge of such folds of paper, so as to incline the whole of it at some angle with the horizon.

As the springs consist of the water, which slides between these inclined strata; it is evident, that in some eminences of ground they are only to be met with on one side of the mountain; and in other eminences of ground on all sides of it. In searching for springs therefore attention should be given to the inclination of the strata of that part of the country, which may be often seen in marl-pits, gravel pits, or in hollow lanes. But they may in general be found above any moist or morassy plain or valley; the moisture of which shews, that springs exist in the strata on that side of the mountain.

A second observation for the purpose of detecting springs may be made on misty evenings; as those parts of the ground where the mist commences, are moister than those in their vicinity on the same level; and in consequence may generally, if they are not hollow basons, possess springs nearer the surface; for these moister parts of the ground, having evaporated more during the day, are become colder on their surfaces than the drier ground in their vicinity; and in misty evenings, which are at the same time calm, the stationary air over these moist parts of the ground is also more loaded with the evaporated moisture; and on both these accounts these moister situations

are liable to shew a condensation of aerial vapour sooner than other places on the same level.

As mountains are colder in proportion to their height, the evening mist sometimes commences sooner on them than in the valleys; but is seen earlier in these situations over the moister places, if they are on the same level with the drier ones, exactly as on the plains or valleys; and may therefore indicate the existence of springs, unless these moister places consist of hollow basons containing water, which if not attended to, may in all situations deceive the observer.

Another observation for detecting springs may be made in rimy mornings; for as moist earth is a better conductor of heat than dry earth, the rime will sooner melt on those parts of the soil, which are kept moist by springs under it, than on other parts; as the common heat of the earth, which is 48 in this country, will sooner be conducted upwards in moist places to dissolve the rime on the surface. On this account the rime is frequently seen on frosty mornings, when the heat of the air is not much above 32, to lie an hour longer on dry cakes of cowdung, or on bridges, or planks of wood, than on the common moist ground; as the latter much better conducts the common heat of the earth to the incumbent rime, which is in contact with it.

But as the heat of the common springs in this country is 48, where they exist, the rime is sooner dissolved than on the stagnant moisture of bogs or morasses. And as the springs about Buxton and Matlock, and at Bath and Bristol, are so much warmer than common springs; it is highly probable; that where these waters approach the surface of the soil, they must much sooner dissolve the rime on frosty mornings; which may probably be observed in situations much higher than their present apparent sources; as they slide down between the interior strata of those hills, beneath the summit of which they are condensed from the steam of water boiling at great depths in the earth; which rises up through those perpendicular clefts of the rocks, which were formed at their original elevation.

In the winter months the rise of springs may be detected in moist ditches by the presence of aquatic plants, as of water-cress, water-parsnip, brook-lime; as in those ditches, which become dry in the summer, these plants do not exist; and when those ditches with springs in them are nearly dry, it may be discovered which way the current has formerly descended by the direction of the points of the leaves of the aquatic plants as certainly as by a level; an observation which I learnt from Mr. Brindley, the great canal-conductor of Staffordshire.

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Finally, these arts of detecting the situation of springs may be advantageous to the attentive agricultor, both for the purposes of draining those lands which too much abound with water, and for the purpose of watering those which are too dry, and which lie beneath the level of the springs, or to which the water may be raised by wind-mills or water-engines to be explained hereafter.

(To be Continued.)

ON CROSSING THE BREED OF SHEEP.

To the Editor of the Agricultural Magazine.

SIR,

IT was the King that about twelve or fourteen years ago first introduced the *subject* of improving British wool, by inter-breeding with Spanish sheep; and if it were pursued with all that degree of energy which I conceive it well to deserve, I cannot but persuade myself it would prove of advantage to the country, equal in value at least to all the improvements in our rural economy taken together, that have been successively introduced during the same period: the patriotic example, indeed, pointed out and enforced by his Majesty, hath been pursued with energy by many noblemen, gentlemen, and professional agriculturists, particularly by the indefatigable zeal and unremitting attention of my Lord Somerville, and the example is now rapidly advancing in all quarters, insomuch that the opposing forces of prejudice and mistaken interest are well nigh about to subside.

Doctor Parry has well exemplified the advantages of this improvement in a treatise of his, published, by Mr. Crutwell, 1800, and in which I have reason to believe the advantages suggested will be found on the strictest investigation, by no means to exceed the limits of actual experience.

Lord Somerville in the year 1802, disposed of his fleeces to a wool stapler, at the following prices, viz.

Ryeland Fleeces	2s.	2d.	per lb. or	£ 26	per pack.
Half Spanish and half Ryeland	3s.	2d.	do. or	38	do.
South Down Fleeces	1s.	10d.	do. or	22	do.
Half Spanish and half South Down	3s.	0d.	do. or	36	do.

being an advance of one shilling per lb. or 12*l.* per pack, on wool of the first cross, besides which the fleeces of the admixture had gained a full pound in weight each, beyond those of the original ewes.

In the same year I had 12 ewes shorn, the fleeces weighing together 78 lb. or 6½ lb. per fleece, on the average. These sheep descend from Wiltshire ewes carrying fleeces of about

3½ lb. only; but by many repeated crossings, (the first and second by his Majesty's ram) now approach very near to the entire Spanish blood, evinced also by the following circumstances.

Like ewes of the Spanish breed they are hornless, whereas Wiltshire ewes, as well as rams, are well known to be horned sheep.

The fleeces are close, compact, equal in weight with the Spanish, and with them carry the same general exterior appearance.

In weight of carcase they are nearly similar to the Spanish.

The quality of the wool has been estimated by competent judges to be equal to the Spanish.

From the circumstance that the males of the Spanish *race* are horned, and the females hornless, it would seem to follow, that it is perfectly distinct from any of the English breeds; for I am not aware that we have in Britain any of this description. Hence it may be a mistaken idea that fine wooled Spanish sheep, originate from sheep first exported from England to Spain. The fact, however, might have been, that English sheep were occasionally exported to Spain; and for ought we know to the contrary with a view to increase the weight of the native sheep; for then as well as at this time, such increase might have been considered by many as an essential criterion of improvement.

Previous to the time of the celebrated Mr. Bakewell, hugeness of size and bone, were pretty universally considered to have been the leading criteria of perfection, but now the advocates for the smaller breeds of our domesticated animals are rapidly increasing.

In the improvement of Leicester sheep it appears that Mr. Bakewell was attentive to several important points.

1st. to smallness of bone.

2d. — Symmetry of frame.

3d. — an early disposition to fatten, which probably is the general consequence of the two former; and again to reduce the size of the carcase, the latter more sparingly perhaps than his unbiassed judgment might have warranted, considering as would be natural enough the existing prepossession in favor of large sized animals; and many persons, disciples of his, and stock breeders, are decidedly of opinion that to effect this point as far as it was effected, he introduced (*sub rosa*) a selection of Ryeland rams to interbreed with his Leicester ewes.

I remain, Sir, your obedient servant,

NEHEMIAH BARTLEY.

Bath, April 14, 1803.

ON THE DRILL HUSBANDRY.

To the Editor of the Agricultural Magazine.

SIR,

Fakenham, April 18, 1803.

HAVING so firmly, and, as I thought, so explicitly declared my attachment to the drill-husbandry, I was not a little surprized to find your Middlesex Correspondent expressing his apprehensions that "I still remain doubtful of its excellency, or if convinced, that I yield reluctantly," I would thank him to inform me what stronger proof of my conviction, and of my decided approbation of drilling I could possibly give, than by expressing my fears that the advocates for *row-culture** may injure rather than promote the cause by *over-much zeal*; and by offering my opinion that the best methods of gaining proselytes are, *moderation in the reports of experiments*, and a *resolute adherence to matters of fact*, such I still aver to be the surest means of propagating any new discovery.

I really cannot see the force of the other replies which this gentleman has made to my observations on the experiments of Messrs. Close and Amos, and must therefore persevere in my first opinion, that the accounts of seed-corn used by drill and broad-cast respectively, are much under-rated in the former mode, and strained to the utmost, if not over-rated, in the latter: even if the trial be made on strong soil, our faith will be put to the test; how much more extravagant therefore will the statement appear to the cultivators of sands and gravels! Every trial of strength between two different modes of tillage, if reduced to pounds, shillings, and pence, ought to be calculated on an average quantity of seed used throughout England, to which average I am sure Mr. Close has paid no respect.† In this county, I may say *fair experiment* has taught the cultivator, that a parsimonious economy of seed-corn, whether in the old or new system, is very injurious, and that if he does not *plant*, he cannot *reap*: hence, the difference of quantity used to seed the land in both methods does not differ with us so materially as on stronger soils, where natural fertility combined with perfect cultivation, causes each plant to fill so luxuriantly as to fill up intervals of surprising extent.

My opponent remarks that my *attack* (as he calls it,) on Mr. Amos's experiment is frivolous, and that his using har-

* So far from being of the number of those who consider this term as affected, I think no one so proper has yet been used.

† I think myself justified in this assertion, as Mr. Close has (no doubt from very laudable and patriotic motives,) declared that the saving through England in the article of seed-corn only, would be to the immense amount of *one million by the use of the drill machine*. He certainly ought not to have confined his calculation to the *Hamphire* soil.

rows oftner on the broad-cast acre than on the drilled, was merely accidental, as the state of the land *perhaps* required it, and that the amount of your charge, &c. was so trifling as not worth notice. To all which I beg leave to reply, that it ought to have occurred to your correspondent, how necessary it is in all comparative experiments that the lands are in every respect in equally good condition, and treated alike; that is, neither ploughed nor harrowed, one more or less than the other, because every such operation is a drawback from the profits of the land so treated, *although the crop may be the better for it*: and as to the charge being so little worth notice, because trifling, I must be allowed to express my surprise that any one should call my remark frivolous, because I noticed it. Had the excess of one sum total above the other been but one halfpenny, I should have objected to it, if as I before expressed myself, it had been *squeezed out* by an unfair charge.

I feel much obliged by the honor you have done my drawings in the late Numbers of your Magazine, as also by the Hint given in your last of an improvement in the construction of my Hand-Drill. I perfectly agree with you, that it would be more simple, but confess myself not mechanick enough to contrive such a lever as you propose, which shall be able to remove the strap so suddenly as may be requisite, or of keeping it in its place on the cylindrical pulley when motion is necessary.

I am, Sir, &c.

AGRICOLA NORFOLCIENSIS.

ON TITHES.

To the Editor of the Agricultural Magazine.

SIR,

THE Vicarages would generally be improved by any system of commuting tithes. The holders of such livings are now so much distressed by their incomes being so inadequate to their support, that any change would be for the better. A vicar cannot recover his tithes without producing the endowment of his vicarage, a very large proportion of these endowments have been lost, consequently all such vicars are without remedy for the recovery of their tithes, and they are exposed to the payment of growing taxes and assessments. The incumbents of such vicarages seem to live by permission of their parishioners. And many others are not worth acceptance owing to the accumulation of taxes and assessments. A vicar is assessable for the whole annual gross produce of his living, the taxes and assessments are in too many places nearly 20s. on the pound, consequently all such

Vicars have the trouble of collecting their tithes, and paying the whole money to the state. In most other cases the taxes amount to a moiety of the Vicar's gross income, therefore all such gentlemen have the trouble of collecting their whole tithes and paying away one half the amount of them before they can apply the remaining moiety to the support of themselves and their families, or in other words, the net income of these men is just one moiety of their nominal income. Such of the vicarages as do not come within one or other of these hard cases are, with few exceptions, small livings which do not exceed 50*l.* a year. Including vicarages of every description and averaging their several net incomes, they are less than is paid to a journeyman tailor, or to a livery servant.

The case of these useful gentlemen is extremely hard, it deserves the commiseration of every man of feeling, and calls loudly for Parliamentary aid. This hardship on the vicars is occasioned by the system of assessing not only them, but all titheable produce, on its highest annual value. All the taxes and assessments of South Britain are levied on Vicars, Rectors, and other tithe-owners, as a tax on income; all other men are only taxable on the rent of the house they live in, or on the rent of the farm they occupy; the Vicars not only are taxable for the houses they live in, but for the income which should enable them to live. Other men who get 300*l.* a year by trade or profession, live in a house of 30*l.* a year, and are taxed on that 30*l.* only! In those cases where the taxes are 20*s.* on the pound, such a person's rent and taxes amount to 60*l.* which taken from 300*l.* leaves him 240*l.* per annum, for the support of his family. But the Clergyman whose income in the same parish, amounts to 300*l.* a year, will be assessed on it at 20*s.* per pound, and pay the whole away in taxes, which leaves him nothing for the support of his family. Again, suppose the taxes to be as they very generally are 10*s.* on the pound, the Clergyman would in this case pay in taxes 150*l.* per annum, and his neighbours with the same income would pay 15*l.* Thus a Clergyman and a Tradesman, neighbours to each other, and each of them having 300*l.* per annum gross income, the former would have a real applicable income of only ($\frac{300}{150}$) 150*l.* and the latter of ($\frac{300}{25}$) 25*l.* This grievance has got to a pitch that is ruinous to the incumbents of Vicarages, and has made its attack on the poorer rectories. In future, no sensible man will train a son to the church with the prospect of becoming a Vicar. Taxes increase much faster than any income arising from tithes, therefore another war, or at the farthest two more wars, will occasion the taxes payable by the clergy, to equal their several incomes. They will then generally have the trouble and anxiety of managing their tithes, of converting them into money, and of paying the

whole amount of such money to the collectors of public taxes. One third of the Clergy have little benefit from tithes at this time; the next expensive war will extend the evil to two thirds of their number, and the second war from this time which shall continue more than six or seven years, will so far annihilate their interest in tithes, as to make them unanimously in favour of any system of commutation. It appears very clearly to be the highest interest of the Clergy, to contribute by every justifiable means towards obtaining a general commutation of tithes, and it is equally clear that the price of the public funds, and consequently the sinews of a strong government, would be best supported by selling the tithes for stock, as hath lately been done by the land-tax.

I am, Sir, yours truly,

Lambeth, April 13, 1803.

JOHN MIDDLETON.

WET SOIL UNFIT FOR TURNIPS.

To the Editor of the Agricultural Magazine.

Sir,

A Cautionary Hint has sometimes as salutary an influence on the practice of the sanguinary agriculturist, as an encouraging stimulant on the slow movements of the bigotted old fashioned husbandman. I have lately experienced a discouraging check in my turnip culture: I therefore wish to give a warning hint to the warm admirers of this, generally speaking, most valuable system of husbandry. I find, that, if land is not dry in its nature and situation, it is very ill adapted to this species of cultivation.

In the beginning of the month of November last, I put 60 shear-hogs, which were half fat, to turnips, and they appeared to improve very fast till about Christmas, when the season became wet, and my turnip field which was about six acres, and was unfortunately cold, stiff, clay land, became, as to its surface, like one general bed of mortar. Nearly in this state the land remained during the months of January and February, till the most healing, beneficial, and severe frost took effect, about the middle of the month of March. At that time I had finished my turnips, and to my inestimable benefit, had a watered meadow, of seven acres, with a tolerable bite of grass, to take them.

On examining my sheep, and comparing the state of their condition with what it was in November last, I found that my turnips, hay, and attention had been expended upon them in vain, and that they were actually in a poorer state than when they were put to the turnips: and their quantity of wool was increased only in a small degree, and was so loaded with dirt

that a considerable portion of it was of necessity thrown away and lost. The quantity of hay thus uselessly expended, was rather more than three tons, which valued at four pounds a ton, for it was of the very best quality, will make my loss in this instance, twelve pounds, which added to two shillings per head, the deterioration of the sheep in condition, will make eighteen pounds, besides the value of the turnips and the charge of extra attention of the shepherd. And, add to all this, the land, when it became dry, if that most salubrious and pulverizing frost in March had not interfered, would have been found in so stubborn a state, at seed time, that all the united efforts of men, oxen, horses, ploughs and harrows would never have been effectual in their attempts to bring it to a proper state to receive the seed. It is astonishing to see and feel the improvement which the sheep have made since their removal from the above bed of mud. The sheep are of the long woolled sort, a cross (which I esteem the most profitable of any that I am acquainted with,) between the Leicestershire and the Gloucestershire.

Be kind enough to insert this in your Magazine, as it may prove of use to some one individual of your readers.

I am your humble servant,

PETER HALL.

ON THE LATE SMITHFIELD SHOW OF CATTLE.

To the Editor of the Agricultural Magazine.

SIR,

I AM not displeased with the notice which your Correspondent, who signs himself "A Subscriber to the Club," takes, as appears in your Magazine for January last, page 29, of my account of the late Smithfield Exhibition of Fat Cattle; although it is done in terms of unnecessary asperity. If I, in that account, only ventured to soften down to a gentle reprehensive hint, what many at the exhibition did not hesitate to proclaim in a loud and direct censure, I surely cannot, with propriety, be called an "Insidious accuser." As an injured individual of the community I had a right to complain, and by the manner in which what I said has been noticed I am rather confirmed in my strong suspicions respecting the author of the misconduct there alluded to. Your Correspondent intimates, that "Mr. Arthur Young had nothing to do with the above named exhibition," and yet very soon afterwards confesses, that his opinion was consulted respecting the fixing of the day of the exhibition.

I wish to ask this member of the Club, who it was that had the resolutions of the Smithfield Club which were formed at the last Woburn sheep-shearing, delivered to him for publica-

tion; and whether the said resolution were not published in a mutilated state.

My "hearsay information" rests on the authority of two Members of the Club, inferior to none in respectability and veracity.

I have waited a month or two, in expectation of an attack, different in its kind to the above; one of your Correspondents having pledged himself, some months ago, to convince me and other friends to the aforesaid exhibition of the great injury of giving encouragement to the over-fattening of animals, or to what he stiled the folly-feeding-system. This person, I hope, has been induced to withhold his promised remonstrance, in consequence of a total removal of his erroneous opinions on this subject.

I cannot prevail upon myself to conclude my letter without pointing at the management of the last show of cattle given by Lord Somerville, as a pattern to the future conductors of the Smithfield exhibition. In the former, every thing professed and promised was literally, fully, and honourably accomplished, in the latter it was not so.

I remain yours,

Piccadilly, April 20.

T. WESTON.

A REPLY TO THE QUERIES OF JUVENIS ON THE BREED OF SHEEP.

To the Editor of the Agricultural Magazine.

SIR,

I TAKE up my pen with particular pleasure to reply to the queries of your Correspondent Juvenis, which breathe the spirit of the liberality and candour. New ideas are frequently suggested by mutual enquiries and explanations, which are only injurious when conducted with heat and asperity.

The attention of your Correspondent is confined to three particulars: the advantages of crossing the Leicester with the South Down sheep, the influence of food on the meat of the animals fattened, and the fattening of the lambs and ewes the same year as stated in my letter.

In regard to the first, the crossing of the Leicester with the South Downs, I was particularly induced to adopt it, from the local circumstances of my own situation, as being favourable to the sale of grass lambs.

I conceive that the disposition to fatten in the Leicester is greater than in the South Down; and that the lambs of the cross will go earlier to market than the lambs of the pure South Down.

I had some hopes that the same disposition to fatten might be extended to the ewes, which should be reared for breeding

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stock. I likewise expected, that in a severe winter, the hardy constitutions of the South Down would subsist on less food than what the pure Leicester would require.

For early lambs the Dorsets are certainly the preferable breed. These I have formerly used for this purpose. Many inconveniencies were, however, found to attend the practice of buying in fresh stock every year from a distant fair. In trusting to jobbers and servants, you are liable to much imposition.

The most satisfactory system is to rear all your own stock, which generally prove healthy while kept on their native soil. On this system the dealings of the grazier are confined chiefly to the butcher. The chief objection is the advance on hay, which every year reduces the quantity of arable land, and will, if it continues, operate to the total exclusion of the sheep husbandry from the neighbourhood of London.

Secondly, your Correspondent conceives, that allowing the quality of South Down mutton to be improved by the sweetness of the herbage, yet that I seem to deny a similar result *à contrario*. I certainly do doubt whether turnips and oil cake are to be considered as food (which Juvenis seems to suppose) the reverse of what is *sweet*; and whether reasoning *a priori* we should expect *bad* meat from such food.

The position, however, which in my paper I opposed, was that of the Swedish naturalist, that the meat of sheep fed on turnips *tasted* of that vegetable and is *spoiled* by it. So far am I for depreciating the value of grass, that I have warmly recommended in your Magazine, the preservation of it through winter and spring for the support of cattle, and particularly as the sheet anchor of the sheep husbandry. Granting for argument sake, that meat fattened on turnips and oil cake, is inferior in flavour to grass fed beef and mutton; yet surely this is a different question from its *tasting* of turnips and being *spoiled* by that food. What would become of the metropolis, if all the turnip fed mutton exposed to sale in Smithfield market was bad tasted?

In regard to oil cake I have had no experience myself, but I have been credibly informed, that the popular objection, of the fat shrinking in the roasting, is not founded; and that the cellular fibrous fat, without substance in the interstices, arises from the animal not having been completely fattened, and that oil cake would have *cured* and not have *increased* the disease.

Digestion is a wonderful process. Food we esteem *good* will frequently produce meat we regard as *bad*. Thus the cow and the horse when fed on the same provisions, hay and corn, will, as articles of food be considered as totally different. From bad food sweet meat may be produced, as in regard to

the hog when fattened on liquors that have undergone the acetous and even the putrefactive process.

We meet with similar instances in the vegetable kingdom, where, by means of secretion, such astonishing changes take place. From the putrid soil of the garden, and the offensive water of the dung hill will spring a beautiful and fragrant flower.

Man under the guidance of reason selects a mixture of animal and vegetable food. Brutes act under the influence of instinct, which is a much surer guide, as it leads them to reject poisonous plants from which the human race frequently suffer.

What then are we to think of that propensity to animal food discovered by the hog? Graves are a mass of animal substance from which the fat has been previously extracted by boiling and by pressure. These I use largely as a manure, and very frequently the hogs will get at the heaps when lying in the yard, and even when mixed with the headlands in the fields. They will then gorge themselves to the full as if feeding on the richest repast; yet I never knew them to suffer any injury from this species of diet, which may lead one to suspect that their digestive organs are accommodated to a mixture of animal and vegetable food.

In Collins, History of Botany Bay, it is stated, that great expectations were formed from a small uninhabited island, contiguous to Norfolk Island, as a nursery for hogs; the island abounding with fern, of the roots of which these animals are remarkably fond, they were found to increase in number surprisingly so as to promise to yield a constant supply of fresh pork to the settlement. Their increase, however, soon became greater than the food would support, when they actually preyed on one another till the whole race was extinct.

Opium diminishes the irritability of the system, and in large quantities totally suspends the action of the vital powers. Query, might not this medicine be applied with advantage in fattening cattle without injuring the quality of the flesh; particularly in quieting that restlessness which they so frequently discover when first confined? Corpulency soon succeeds a state of inaction in the brute creation, when all irritating causes are removed, and nourishing food in sufficient quantity is provided. Might not occasional doses be given with advantage so as to produce a morbid degree of heaviness and sleep.

Thirdly, in regard to what Juvenis conceives I state respecting South Down ewes being bought in autumn ready crossed with a Leicester ram, and the lambs and ewes fattened the same year that the sheep were bought, the idea itself is so palpably absurd that I am obliged to you, Mr. Editor, for supposing that it could not have been my intention to make any such statement. By placing a semicolon instead of a

comma before the word crossed, and my meaning will be plain. "I have known South Down ewes bought in the autumn in the fairs in Surry; crossed (by which I mean *then* crossed) with a Bakewell ram? the lambs sold in Smithfield time enough for the ewes to go off fat from the grazing grounds the same year, (I mean the same year that the lambs were sold and not that the ewes were bought,) Juvenis quotes me as representing this as a common practice, not aware that my expression, this I have known the regular routine of practice for years," might be confined, which was the fact in the present case, to one farm, a large one in the neighbourhood of London, held by a particular friend, who followed the practice for several years. The ewes were selected for sale from the folding flocks and were therefore aged; but the ram was one of the best in the country, being descended from Mr. Bakewell's celebrated ram that brought in such a revenue to the owner.

Never having heard of South Down ewes being exposed to sale in the fairs near the metropolis, ready crossed with Leicester rams, I was not aware that the sentence when I pen'd it was liable to such a construction.

April 22, 1803.

A. WILKINSON, M.D.

PRICES OF IMPLEMENTS IN HUSBANDRY.

To the Editor of the Agricultural Magazine.

SIR,

SEEING in your Magazine for February and March an account of Hayward's Extirpator, and not having Mr. Young's Suffolk, shall think myself much obliged if you will inform me at what place the Extirpator is to be seen, and in what county, and near what place is Stoke Ash. If you would inform us of the value of the many things you mention in your publication, and the place they are sold at, and the residence of the inventor, you will cause many machines to be sold, that we Farmers know not at what place to apply for.

I am, Sir, your humble servant,

THOMAS SHEPPARD.

(Note by the Editor.)

The account of Implements being extracted from the New Farmer's Calendar, we have, out of respect to our Correspondent, made instant application to the author, who, with his usual attention to every request of this kind, has favoured us with the following answer.

EDITOR.

To the Editor of the Agricultural Magazine.

SIR,

IN answer to your Correspondent from Buckinghamshire, I must previously state, that I have, in the New Farmer's Calendar, referred inquirers after implements, generally, to the London mechanics, the names of the chief of whom I

have quoted. My opinion of the Extirpator, from what I have seen of it, and the repeated enquiries I have had respecting it, from various parts, are noticed in the preface to the last edition of the Calendar, published this spring.—An application by letter, to Mr. M'Dougale, Oxford-street, or to the Rev. Mr. Cooke, Red-Lion-square, or Mr. Lester, High Holborn, London, Agricultural Implement makers, will, no doubt, be answered satisfactorily, as to the price or utility of any particular implement, or as to the recommendation of implements proper for any given soil.

I have already acquainted the public where I first heard of Hayward's Extirpator: it struck me immediately, as a considerable improvement of the old tool; and from the interest excited among farmers by the account of it, Mr. M'Dougale set about making them, of which he has since sold great numbers. By that maker your Correspondent may be immediately furnished with one, or if he rather chuse to apply to the original inventor, Mr. Hayward, a letter directed to Mr. H. Stoke Ash, Suffolk, will, no doubt, find him. A more particular direction it is not in my power to give; for although I was within five miles of being born a Suffolk man, I have really forgotten, in what quarter of the county Stoke Ash is situated. Had Mr. Hayward been desirous of pushing the sale of his Extirpator, and had hinted as much to me, I should surely in justice have referred my Correspondents to him.

Mr. M'Dougale is authorised to make and sell certain other implements, which have excited a still stronger interest with the farming public—Lord Somerville's two furrow and single ploughs, the one for light and middling, the other for the strongest soils; from what I have seen of their work, and according to the best judgment, I am at present able to form, the ablest constructed ploughs, and of the easiest draught of any at this day used upon our island. For an account of these ploughs, and for acute practical observations on the subject of ploughing in general, draught oxen, and the most important intelligence on the subject of sheep and wool, that has ever been published in this country, I must beg to refer the readers of the Magazine to the Noble Lord's late publication, intituled, "Facts and Observations, relative to Sheep, Wool, Ploughs, and Oxen."

I am, Sir, your obedient servant,

April 23.

JOHN LAWRENCE.

M'Dougale's Prices of the following Implements:

	£.	s.	d.
Lord Somerville's Double Plough	8	8	0
Single ditto	4	14	0
The Extirpator or Scalp Plough complete with a wheel and chain	8	8	0

	£.	s.	d.
The Drill Machine, to sow at three distances, the rows either 9, 12, or 18 inches apart, 6 bout lands at twice, 3 bout lands at once. For all sorts of grain and seeds. Price of the Machine	12	12	0
Two sets of Hoes to complete the Drill	3	3	0
The Expanding Horse Hoe, for all distances, 12 inches to 2 feet	3	3	0
Ditto, for potatoes	4	4	0
Munnip's, or the Norfolk Turnip Drill	1	15	0
An improvement of the late Lord Petre's Turnip Drill	2	12	6
The Flexible Tube for choaked or hoven Cattle	1	1	0
Ditto for Sheep	0	10	6

An account of the degree of success which Mr. Lester has experienced with his new Threshing Machine, price 30*l.* may soon be expected.

(*A Plate of the Drill Machine may be seen in the late Sir John Ansthruther's Treatise on the Drill Husbandry.*)

DIRECTIONS FOR THE USE OF THE FIVE ROW DRILL.

Put on the shares and funnels, beginning with No. 1, at the left-hand side, when you drill at 9 inches distance, fix the shares at 9 inches and the funnels No. 1, 2, 3, 4, 5; and when you drill at 12 inches distance, fix the shares at 12 inches, and the funnels No. 1, 4, 2, 5; and when you drill at 18 inches distance, put in the two outside and the middle shares and the funnels No. 1, 3, 5.

Regulate the distribution of the seed by the sliding-plates, behind the seed-barrels, so that each bucket may bring out 8 grains of wheat, which is nearly 6 pecks to an acre at 9 inches distance. Lift the hopper out of work whilst you turn at the end of the land, by the lever for that purpose, and put it again into work before you move forward. Move the hopper forward in order to keep the bar A at the end of the hopper horizontally level, when you go up hill, by the screw for that purpose; and when you go down hill, move the hopper backward.

In order to drill the rows straight, divide the field into ridges of 8 feet and a half wide, and fix the shafts so that the horse may go in the furrow before the right-hand wheel, then let the horse go up one furrow and return in the other, and the ridge will be completed. If the land is wet, lay it up in ridges of four feet and a half wide, or three bout ridges, so that the horse going in one furrow before the wheel, completes the ridge. The seed barrels with large buckets is for beans and peas, and those with second size buckets are for wheat, barley, and oats, and the small buckets are for turnips and other small seeds.

Beans should be drilled at 18 inches distance, peas at 12 or 18 inches, and wheat at 9, 12, or 18 inches, barley and oats at 9 or 12 inches, and turnips at 12 or 18 inches.

ON THE NOURISHMENT OF VEGETABLES.

By Dr. Hunter.

We embrace this opportunity, and indeed we think it a part of the duty which we owe to the public, to avail ourselves of the kind indulgence granted by Dr. Hunter, and expressed by him at the conclusion of his Geographical Essays. As this Selection says he contains many original Papers, I shall be happy to see them as generally diffused as possible; for which reason, I embrace the opportunity of freely offering them to the Editors of Agricultural Publications, in order to answer the liberal end of universal communication. In order to mark the progress of Agricultural Improvements, I have it in contemplation to publish two Volumes, annually, in the manner of this selection; but, in the execution of the design, I shall be directed by the opinion that the public may entertain of the present Publication.

YORK, January 1, 1803.

A. HUNTER.

I Lay it down as a fundamental maxim, that all plants receive their principal nourishment from oily and mucilaginous particles incorporated with water, by means of an alkaline salt or absorbent earth. Till oil is made miscible, it is unable to enter the radical vessels of vegetables; and, on that account, providence has bountifully supplied all natural soils with chalky or other absorbent particles. I say natural soils, for those which have been assisted by art are full of materials for that purpose; such as lime, marl, soap-ashes, and the volatile alkaline salt of putrid dung-hills.

It may be asked, whence do natural soils receive their oily particles? I answer, the air supplies them. During the summer months, the atmosphere is full of putrid exhalations arising from the steam of dunghills, the perspiration of animals and smook. Every shower brings down these putrescent particles for the nourishment of plants. Of these, some fall into the sea, where they probably serve for the nourishment of fuci, and other submarine plants. They are, however, but seemingly lost, as the fish taken from the sea, and the weeds thrown upon the beach, restore them again under a different form. Thus Providence, with the most consummate wisdom, keeps up the necessary rotation of things, dissolution and combination following each other in endless succession.

When the putrescent particles that are suspended in the atmosphere, happen to fall upon a very sandy soil, the solar heat exhales the most of them. Hence an additional reason for covering our light soils with herbage during the summer months.

On the contrary, when these particles fall upon stiff land, or such as have been marled or lined, an intimate union is produced, too strong for the solar heat to exhale.

It is observed, that lime mechanically binds a hot sandy soil. We now see that it also fertilizes it; but the farmer must not presume too much upon that quality.

The ingenious Mr. Tull and others, contend that earth is the food of plants. If so, all soils equally tilled would prove equally prolific. The increased fertility of a well-pulverised soil, induced him to imagine that the plough could so minutely divide the particles of earth, as to fit them for entering into the roots of plants.

An open soil, if not too light in its own nature, will always produce plentiful crops. It readily receives the air, rains, and dews into its bosom, and at the same time gives the roots of plants a free passage in quest of food. This is the true reason why land well tilled is so remarkably fruitful.

Water is thought, by some, to be the food of vegetables, when in reality it is only the vehicle of nourishment. Water is an heterogeneous fluid, and is no where to be found pure. It always contains a solution of animal or vegetable substances. These constitute the nourishment of plants, and the element in which they are minutely suspended, acts only as a vehicle, in guiding them through the fine vessels of the vegetable body.

The hyacinth, and other bulbous roots, are known to perfect their flowers in pure water. Hence superficial observers have drawn an argument in favour of water being the food of vegetables. But the truth is, the roots, stem, and flowers of such plants are nourished by the mucilaginous juices of the bulb, diluted by the surrounding water. This mucilage is just sufficient to perfect the flower, and no more. Such a bulb neither forms seeds, nor sends forth off-sets. At the end of the season, it appears weak, shrivelled, and exhausted, and is rendered unfit to produce flowers the succeeding year. A root of the same kind, that has been fed by the oily and mucilaginous juices of the earth, essentially differs in every particular. It has a plump appearance, is full of mucilage, with off-sets upon its sides.

All rich soils, in a state of nature, are thought to contain oil and mucilage; and in those lands which have been under the plough for some years, they are found in proportion to the quantity of putrid dung that has been laid upon them, making an allowance for the crops they have sustained.

To set this matter in a clearer light, let us attend to the effects of manures of an oily nature, and we shall soon be satisfied that oil, however modified and distinguished, is one of the chief things concerned in vegetation.

Rape-dust, when laid upon land, is a speedy and certain manure, though an expensive one, and will generally answer best on a limestone land, or where the soil has been moderately limed.

This species of manure is much esteemed by the farmer. It contains the food of plants ready prepared; but as it is not capable of loosening the soil by any fermentation, the lands

upon which it is laid ought to be in excellent tilth. At present, that useful article of husbandry is much diminished in goodness, owing to the improved methods of extracting the oil from the rape. Heat and pressure are employed in a double degree, and every other method is used to the prejudice of the farmer. Some persons, however, are of opinion, that the severe extraction of the oil does not materially injure the rape-dust.

Farmers that live in the neighbourhood of large towns use abundance of soot. It is an oily manure, but different from the former, containing alkaline salt in its own nature, calculated as well for opening the soil, as for rendering the oily parts miscible with water.

It is observed that the dung of pigeons is a rich and hasty manure. These animals feed chiefly upon grains and oily seeds; it must therefore be expected that their dung should contain a large proportion of oil.

∴ The dung of stable-kept horses is also a strong manure, and should not be used until it has undergone the *putrid ferment*, in order to mix and assimilate its oily, watery, and saline parts. Beans, oats, and hay, contain much oil. The dung of horses that are kept upon green herbage, is of a weaker kind, containing much less oil. Swine's dung is of a saponaceous and oily nature, and perhaps is the richest of the animal manures. When made into a compost and applied with judgment, it is excellent both for arable and grass lands. The dung of stall-fed oxen, especially if oil-cake make part of their food, is of a rich quality, and greatly preferable to that of cows and oxen supported by grass only. A farmer, when he purchases dung, should attend to all the circumstances under which it is produced. One load of dung from a hunting stable, where much corn is used, is worth two loads produced by hay and green provender.

The dung of ruminant animals, as cows and sheep, is preferable to that of horses at grass, owing to the quantity of animal juices mixed with their food in chewing. And here I beg leave to remark in general, that the fatter the animal, *ceteris paribus*, the richer the dung.

Human ordure is full of oil and a volatile alkaline salt. By itself, it is too strong a manure for any land; it should therefore be made into a compost before it is used. The dung of carnivorous animals is plentifully stored with oil. Animals that feed upon seeds and grains come next, and after them follow those which subsist upon grass only.

To suit these different manures to their proper soils, requires the greatest judgment of the farmer; as what may be proper for one soil, may be highly detrimental to another.

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O o

In order to strengthen my argument in favour of oil (philogiston) being the principal food of plants, I must beg leave to observe, that all vegetables, whose seeds are of an oily nature, are found to be remarkable impoverishers of the soil, as hemp, rape, and flax; for which reason, the best manures for lands worn out by these crops, are such as have a good deal of oil in their composition; but then they must be laid on with lime; chalk, marl, or soap ashes, so as to render the oily particles miscible with water.

The Book of Nature may be displayed, to show that oily particles constitute the nourishment of plants in their embryo state; and, by a fair inference, we may suppose that something of the same nature is continued to them as they advance in growth. The oily seeds, as rape, hemp, line, and turnip, consist of two lobes, which, when spread upon the surface, from the seminal leaves. In them the whole oil of the seed is contained. The moisture of the atmosphere penetrates the cuticle of the leaves, and, mixing with the oil, constitutes an emulsion for the nourishment of the plant. The sweetness of this balmy fluid invites the fly, against which no sufficient remedy has, as yet, been discovered. The oleaginous liquor being consumed, the seminal leaves decay, having performed the office of a mother to her tender infant. To persons unacquainted with the analogy between plants and animals, this reflection will appear strange. Nothing, however, is more demonstrable.

Most of the leguminous and farinaceous plants keep their placenta, or seminal leaves, within the earth; in which situation they supply the tender germ with oily nutriment, until its roots are grown sufficiently strong to penetrate the soil. The curious reader will find this subject treated of at large in the third Essay.

It is usual to talk of the salts of the earth, but chemistry has not been able to discover any salts in land which has not been manured; though it is said that oil may be readily obtained from every soil, the very sandy ones excepted.

Marl, though a rich manure, has no salts. It is thought, by some, to contain a small portion of oleaginous matter, and an absorbent earth, of a nature similar to limestone, with a large quantity of clay intermixed.

Lime, mixed with clay, comes nearest to the nature of marl of any factitious body that we know of, and may be used as such, where it can be had without much expense. By increasing the quantity of clay, it will make an excellent compost for a light sandy soil; but to make the ground fertile, woollen rags, rotten dung, currier's shavings, or any oily manure, should be incorporated with it some time before it is laid on.

It is the opinion of some, that lime enriches the land it is laid upon, by means of supplying a salt fit for the nourishment of plants; but by all the experiments that have been made upon lime, it is found to contain no kind of salt. Its operation, therefore, should be considered in a different light. By the fermentation that it induces, the earth is opened and divided, and, by its absorbent and alkaline quality, it unites the oily and watery parts of the soil. It also seems to have the property of collecting the acid of the air, forming with it a combination of great use in vegetation.

From viewing lime in this light, it is probable that it tends to rob the soil of its oily particles, and in time will render it barren, unless we take care to support it with rotten dung, or other manures of an oily nature.

As light sandy soil I contain but a small portion of oleaginous particles, we should be extremely cautious not to overdo them with lime, unless we can at the same time assist them liberally with rotten dung, shavings of leather, woollen rags, shavings of horn, and other manures of an animal kind. Its great excellence, however, upon a sandy soil, is by mechanically binding the loose particles, and thereby preventing the liquid parts of the manure from escaping out of the reach of the radical fibres of the plants.

Upon clay the effect of lime is different; for by means of the gentle fermentation that it produces, the unsubdued soil is opened and divided; the manures laid on readily come into contact with every part of it; and the fibres of the plants have full liberty to spread themselves.

It is generally said that lime answers better upon sand than clay. This observation will undoubtedly hold good as long as the farmer continues to lime his clay lands in a scanty manner. Let him treble the quantity, and he will then be convinced that lime is better for clay than sand. It may be justly answered, that the profits will not admit of the expense. I agree. But then it must be understood that it is the application, and not the nature of the lime, that should be called in question. Clay, well limed, will fall in water, and ferment with acids. Its very nature is changed.

Under such agreeable circumstances, the air, rains, and dews are freely admitted, and the soil is enabled to retain the nourishment that each of them brings. In consequence of a fermentation raised in the soil, the fixed air is set at liberty, and in that state of activity it becomes an useful instrument in dividing the tenacious clay. However, let the farmer, who uses much lime for his clay lands, be instructed to manure them well, otherwise the soil will bake and become too hard to permit the roots of the plants to spread themselves in search of food.

It is the nature of lime to attract oils and dissolve vegetable bodies. Upon these principles we may account for the wonderful effects of lime in the improvement of black moor-land. Moor-earth consists of dissolved, and half-dissolved, vegetable substances. It is full of oil.—Lime dissolves the one, and assimilates the other.

Such lands, not originally worth sixpence per acre, may be made, by paring, burning, and liming, to produce plentiful crops of turnips, which may be followed with oats, barley, or grass seeds, according to the inclination of the owner.—These observations, however, are rather foreign to the argument of the present essay, to which I shall now return.

To the universal principle, oil, (phlogiston) we must add another of great efficacy, though very little understood; I mean the nitrous acid of the air.

That the air does contain the rudiments of nitre, is demonstrable from the manner of making salt-petre in the different parts of the world. The air contains no such salt as perfect nitre; it is a factitious salt, and is made by the nitrous acid falling upon a proper matrix of the rubbish of old houses, fat earth, and any fixed alkaline salt. The universal acid, as it is called, is attracted by these materials, and forms true nitre, which is rendered pure by means of crystalization, and in that form it is brought to us. In very hot countries, the natural earth forms a matrix for nitre, which makes the operation very short.

It is observed that nitre is most plentifully formed in winter, when the wind is northerly: hence we may understand the true reason why land is fertilized by being laid up in high ridges during the winter months. The good effects of that operation are wholly attributed to the mechanical action of the frost upon the ground. Light soils as well as the tough ones, may be exposed in high ridges, but with some limitation, in order to imitate the mud walls in Germany, which are found by experience, to collect considerable quantities of nitre during the winter.

After saying so much in praise of nitre, it will be expected that I should produce some proofs of its efficacy, when used as a manure. I must confess that experiments do not give us any such proofs. Perhaps too large a quantity has been used; or rather, it could not be restored to the earth with its particles so minutely divided, as when it remained united with the soil, by means of the chemistry of nature. I shall therefore consider this nitrous acid, or as some call it, the *acidum vagum*, in the light of a vivifying principle, with whose operations we are not yet fully acquainted.

I have already observed, that there subsists a strong analogy between plants and animals. Oil and water seem to make up

the nourishment of both. Earth enters very little into the composition of either. It is observed, that animals take in a great many earthy particles at the mouth, but they are soon discharged by urine and stool. Vegetables take in the smallest portion imaginable of earth; and the reason is, they have no way to discharge it.

It is highly probable, that the radical fibres of plants take up their nourishment from the earth, in the same manner that the lacteal vessels absorb the nutriment from the intestines; and as the oily and watery parts of our food are perfectly united into the milky liquor, by means of the spittle, pancreatic juice, and bile, before they enter the lacteals, we have all the reason imaginable to keep up the analogy, and suppose that the oleaginous and watery parts of the soil are also incorporated, previous to their being taken up by the absorbent vessels of the plant.

To form a perfect judgment of this, we must reflect that every soil, in a state of nature, has itself a quantity of absorbent earth, sufficient to incorporate its inherent oil and water; but when we load it with fat manures, it becomes essentially necessary to bestow upon it, at the same time, something to assimilate the parts. Lime, soap-ashes, kelp, marl, and all the alkaline substances, perform that office.

In order to render this operation visible to the senses:— Dissolve one drachm of Kussia potash in two ounces of water; then add two spoonfuls of oil. Shake the mixture, and it will instantly become an uniform mass of a whitish colour, adapted, as I conceive, to all the purposes of vegetation.

This easy and familiar experiment is a just representation of what happens after the operation of burn-baking, and consequently may be considered as a confirmation of the hypothesis advanced. Let us attend to the process.

The sward being reduced to ashes, a fixed alkaline salt is produced. The moisture of the atmosphere soon reduces that salt into a fluid state, which, mixing with the soil, brings about an union of the oily and watery parts, in the manner demonstrated by the experiment.

When the under stratum consists of a rich vegetable mould, the effects of burn-baking will be lasting. But when the soil happens to be thin and poor, the first crop frequently suffers before it arrives at maturity.

The farmer, therefore, who is at the expense of paring and burning a thin soil, should bestow upon it a portion of rotten dung, or shambles manure, before the ashes are spread, in order to supply the deficiency of oily particles; and he should be very careful not to keep this kind of land too long under the plough.

In consequence of this prudent management, the crop will be supported during its growth, and the land will be preserved in health and vigour.

For such weak lands, it is highly probable that oil compost will be found the cheapest and most effectual manure.

Hitherto I have considered plants as nourished by their roots. I shall now take a view of them as nourished by their leaves. An attention to this part of the vegetable system is essentially necessary to the *rational* farmer.

Vegetables that have a succulent leaf, such as vetches, peas, beans, and buck-wheat, draw a great part of their nourishment from the air, and on account impoverish the soil less than wheat, oats, barley, or rye, the leaves of which are of a firmer texture.

In this manner the vegetable creation renders the air pure by assimilating to itself those putrescent particles, which, if not removed, would render the atmosphere unfit for animal respiration. Some modern philosophers have attempted to destroy this opinion, but they must bring stronger proofs than those they have produced, before they can expect to tear from the human breast an idea so full of harmony.

Rape and hemp are oil-bearing plants, and consequently impoverishers of the soil; but the former less so than the latter, owing to the greater succulency of its leaf.

The leaves of all kinds of grain are succulent for a time; during which period the plants take little from the earth; but as soon as the ear begins to be formed, they lose their softness, and diminish in their attractive power.

The radical fibres are the more vigorously employed in extracting the oily particles of the earth, for the nourishment of the seed. Such, I apprehend, is the course of nature.

WATER MEADOW LATELY FORMED IN YORKSHIRE.

To the Editor of the Agricultural Magazine.

SIR,

I HAVE just had some conversation with a person skilled in the art of floating meadow land, according to the plan practised in the county of Gloucester, who has given me a report of his late operations in Yorkshire, which as it is of a rather encouraging complexion, and tends strongly to remove the general dread of engaging in this novel branch of husbandry on account of its expence, I shall beg of you to assist me in making it public.

This person informs me that he has just converted fourteen acres of poor grass land, the property of Mr. Grimston, of Neswick, near Driffield, into water meadow, in the most complete and costly method that is ever adopted, and the whole expense did not exceed seven pounds per acre, although he was under the necessity of removing two small hills or eminences which contained several hundreds of cart loads each.

Mr. Grimston, with a degree of spirit and discernment highly creditable, determined to have his meadow made as perfect as possible at once, and desired the floater, by name Portlock, to begin his formation upon that principle. - The floater, accordingly, pared off the whole of the turf, to be preserved for replacing, and then after having stretched two lines, one along the side of the floating gutter or top of the ridge, and another along the side of the drain, at the distance of seven yards, (for it seems he had but a scanty allowance of water,) he proceeded to slope off or cut down the soil to the last mentioned line, to the depth of three inches, and threw it to the side of the former line, or towards the top of the bed, with a regular descent, one from the other. Thus the bed, by three inches having been taken from one part to elevate the other, gained six inches fall: which he informs me is a sufficient descent for a bed of that width where there is no great command of water. Thus was every part of the meadow thrown into regular ridges at once, a complete turf afforded it, a double descent given to each ridge, that is, a descent in each floating gutter and drain, as well as in the beds, and the whole meadow brought to that state of perfection which is requisite to reap, undiminished, the abundant advantages of irrigation.

In the above-mentioned expence of seven pounds per acre, are to be reckoned the charge of making and placing all the flood hatches which, it appears, were very numerous, at the request of the proprietor; a flood-hatch to almost every floating gutter to give a greater command over the water, that any particular part might be watered or laid dry at pleasure.

This formation of the meadow commenced at the beginning of the month of October last, and a considerable part of it would have been under water before the end of November, but the springs which supply the water did not break freely, as it is termed, before the beginning of January, as I believe was the case with most springs this last winter: notwithstanding this deficiency of water, however, the proprietor of the meadow was enabled to turn into it 200 ewes with their lambs, on the second day of April, where, it is confidently expected, they will find ample support for the term of three weeks.

This prompt production of early grass, procured at no very alarming enormity of cost, speaks in favour of this branch of

husbandry, I think, and I hope, Sir, you will think so likewise, in a language which deserves a general hearing and attention,

I am, Sir, your humble servant,
London, April 23, 1803.

T. W.

THE MOST PROFITABLE USE OF STRAW.

To the Editor of the Agricultural Magazine.

SIR,

THERE are no objects, in the whole range of rural economy, of greater moment than these two; the most effectual mode of increasing our quantity of fodder, and the cheapest methods of procuring manure, and indeed these two are almost natural consequents of each other. And the general recommendation towards the obtaining of these objects is, the planting of a variety of green crops upon highly manured land; but I shall pursue a different plan in the council which I shall presume to give for these purposes; and only advise the farmer to apply to the best advantage that *saving knowledge* of which he is seldom found destitute. I shall only advise him to use cautiously the means which he already possesses, not to act merely upon the plan of present profit, but to look forward to consequences. I address myself particularly to those farmers who occupy their own land, for tenants, under the wise restrictions of leases, stand not in need of the council which I am about to give.

I observe in various parts of England large quantities of wheat, rye, and sometimes oat straw rendered useless towards the productive purposes of agriculture, by being used as a covering to houses and other buildings. This, as far as it goes, and its extent is not very confined, is a certain loss to the community, and to the proprietors too, if contracted notions would allow them to see it, both of animal food and productive manure.

Were the straw thus consumed only subjected to the strokes of the chaff-cutter, and given to young cattle, (the increase of which cattle is at this time peculiarly a great national desideratum,) we should soon experience its worth in a higher degree even than as a shelter from the inclemency of weather.

For instance, were the breeders in Herefordshire to use every particle of their straw in the shape of chaff, and to give it to their steers and oxen, alternately with turnips, potatoes, cabbages, or similar food, they would be enabled to keep them a year longer, at a very cheap rate, than is usually the case: and the breeder, besides the additional quantity of manure which he would gain, would find his beasts more improved in the space of the last year than in the two former

years, and the feeder would find them more fit for his purpose, and of course more profitable. And what I say of this species of cattle may, with equal force, be said of almost every other.

These farmers alluded to, however, will tell us, "that they receive an enormous price for, or make a great profit of, the straw which they either sell or use for thatch." This I allow, and it is this prompt payment, which seems attended with no deductions, that captivates and deceives them.

But let these persons reflect, that from this seeming clear profit, they are first to deduct the expences of preparing, or if they sell their straw, of delivering out; that is, the labour of their servants, horses, &c.

In the second place they are to deduct the cost they are at in providing other manure to supply the place of that which would have arisen from the straw if taken as food.

In some places, other kinds of manure are to be procured, and then their grounds, year after year, robbed of a part of their natural manure and support, will afford crops less and less fruitful, till at last they will be reduced to the extreme of having no straw to sell or use. But supposing that they are so situated as to be enabled to procure other species of manure, yet the extra expence of distant cartage and laying them on their lands, compared with the easy carrying out of what is already upon their premises, will form no small deduction from the supposed clear profit above-mentioned.

And after all, let them reflect on the truth which the practical and theoretical farmer agree in, that a mixture of manures has the most beneficial effect. And let them fully appreciate the value of the manure made in the common farm-yard, which is certainly the most fertilizing of all mixtures, and they will discover, that they are receiving with one hand only in order to pay out more profusely with the other, when they venture to sell, or to use their straw for thatch.

But I may here be asked, with what materials are buildings to be covered where neither slates nor tiles are to be found? To this I answer, that slates or tiles are to be procured, in every part of this island, at a rate ultimately less expensive than a covering of straw when its manifold, extended, and full value is taken fairly into consideration. There is no canal in England which does not convey slates from place to place; and there is scarcely a parish in the kingdom where bricks are not, or might not, be made, and where these are made, tiles may be made likewise.

I am confident, that if this one simple regulation, which I have mentioned, namely the making the most of our straw,

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were duly attended to, that we should soon experience a considerable reduction in the price both of cattle and butchers' meat.

I am, Sir, yours,

T. C.

For the Agricultural Magazine.

USEFUL TABLES FOR FARMERS AND GARDENERS.

Division of an Acre, into Roods, Rods, Yards, Feet, and Inches.

AN account of the number of plants, or trees, which may be planted on a rod or acre of land, at different distances, a calculation of the value of several crops on an acre of land, and value of it for building.

I.

In an acre are

- 4 Roods, each rood 40 rods, poles or perches.
- 160 Rods, 16 feet and a half each.
- 4,840 Square yards, 9 feet each.
- 42,560 Square feet, 144 inches each.
- 174,240 Squares of 6 inches each, 36 inches each.
- 6,272,640 Inches, or squares, of one inch each.

II.

Division of a Rod.

To shew how many plants may be raised on a rod of land at different distances.

In a rod are 272½ square feet, or 19,204 square inches.

A Rod will contain,

Trees or Plants.	Number of inches asunder.	Square inches to each.
2,450 and 4 inches over	4 by 4	16
1,960	5 by 4	20
1,633 and 12	6 by 4	24
1,089	6 by 6	36
816 and 36	8 by 6	48
612 and 36	8 by 8	64
490 and 4	10 by 8	80
392 and 4	10 by 10	100
272 and 36	12 by 12	144
261 and 54	15 by 10	150

III.

An Acre will contain.

Trees or Plants.	Numbers of feet asunder.	Square feet to each.
108 and 360 feet over, at 20 feet asunder, or	400	
160	16½ ditto	272½
134 and 144 feet over	18 ditto	324
302 and 72 ditto	12 ditto	144
435 and 60 ditto	10 ditto	100
680 and 40 ditto	8 ditto	64
888 and 48 ditto	7 ditto	49

Trees or Plants.	Number of feet afunder.	Square feet to each.
1,089	8 by 5	40
1,210	6	36
1,361 and 8	8 by 4	32
1,452	6 by 5	30
1,555 and 20	7 by 4	28
1,815	6 by 4	24
2,178	5 by 4	20
2,722 and 8	4 by 4	16
2,904	5 by 3	15
3,630	4 by 3	12
4,840	3 by 3	9
5,445	4 by 2	8
7,260	3 by 2	6
8,712	2½ by 2	5
10,890	2 by 2	4
19,305	1½ by 1½	2½
21,780	2 by 1	2
43,560	1	1

A mile square contains 640 acres.

IV.

To calculate the value of several Crops on an Acre of Land.

19,360 plants at	d. ½ each	} £. s. d.	20	3	4
9,680	1 ½ —				
4,840 a plant to each yard	1 —				
2,420	2 —				
1,210	4 —				
605	8 —				
43,560 a plant to each foot	{ 1	181	10	0	
	½	90	15	0	
	¼	45	7	6	
20,000 plants	} at 1d. each.	83	6	8	
10,000 —		41	13	4	
5,000 —		20	16	8	
1,000 —		4	3	4	
500 —		2	1	8	
250 —		1	0	10	
160 —		0	13	4	
100 —		0	8	4	
4,840 plants at	{ 1d.	20	3	4	
	2d.	40	6	8	
	3d.	60	10	0	
	4d.	80	13	4	
	6d.	121	0	0	

The value of an Acre of Land for Building.

	s.	d.	£.
4,840 square yards at	5	0	1,210
	4	0	968
	3	0	726
	2	6	605
	2	0	484
	1	0	242

A NATURAL PROPENSITY OF SWINE.*To the Editor of the Agricultural Magazine.*

SIR,

I HAVE been inclined, sometime, to combat a position laid down in your Magazine for the month of November last, page 327, founded upon the experience, as is there asserted, of a Mr. Saunders, of Stroud, who says, that "*cleanliness*, contrary to the common opinion formed of the swine species, is essentially conducive to the growth and well being of a pig." Now, Sir, this position seems daily to be contradicted by what we see of the natural habits of this animal, having lately read what Varro says on this subject, I shall venture to place the opinion of a wise Roman in opposition to that of Mr. Saunders and of your Correspondent Viator.

Varro in his *De Re Rustica*, de Sue, says, "a place adopted for the fattening of swine, should be wet or marshy, because they delight not only in water but in mud." And again, in the next page, "that they may roll in the mud, which is as refreshing to them, as the bath is to man."

But that your readers may judge for themselves of the fairness of my translation, I shall beg of you, if you favour me with the insertion of this, to give the latin likewise, which is as follows:

Page 227, "In pastu locus huic pecori aptus uliginosus, quod delectatur non solum aqua, sed etiam luto." Page 228, "Ut voluntentur in luto, quæ est illorum requies, ut lavatio hominis."

Whilst, however, I am thus venturing to opposed authority to the opinion of Mr. Saunders I do not wish to detract in the least from the merit of his discovery, from which I expect a valuable result.

I am yours,

AN OXONIAN.

THE NATURAL HISTORY AND BOTANICAL DESCRIPTION OF
THE PINUS CEMBRA, OR APHERNOUSLI PINE, WITH THE
USES OF ITS TIMBER, AND THE VIRTUES AND QUALITIES
OF ITS KERNELS AND RESIN; FROM AUTHORS OF EMI-
NENCE FOR ABOVE 200 YEARS. WITH DIRECTIONS FOR
THEIR CULTIVATION IN THIS KINGDOM.

To the Editor of the Agricultural Magazine.

SIR,

THIS curious and valuable timber-tree, the Pinus Cembra, or Apherousli Pine, although it has been described by various Botanists for above 250 years past, has been but lately known in England, and at present there are but very few plants to be found in the gardens of this country.

As it grows in so many parts of the Continent, it is a matter of surprise, that our various travellers have taken so little notice of it, on account of the majestic appearance which they make on bleak and barren mountains, where one would think that scarcely any plant would grow, and the kernels being eatable.

It is to Mr. Harte, Canon of Windsor, that we are indebted for the first authentic account of it from any English traveller, but it is proper also to insert the descriptions from various foreign authors who have described it, and arrange them in their chronological order, according to the period of time in which they were written.

To Matthioli we are indebted for the first account of it, who calls it,

Pinus Cembra. Matthioli's Commentary on Dioscorides, lib. i. c. 74. where five prints cut in wood may be seen.	Fol. Venet	1548
Pineaster. Belloni de Arboribus Coniferis.	12mo. Ant.	1553
Pinus sylvestris Cembra. Camerarii Epit.	42. Francs. 4to.	1586
Pinus Foliis Quinis, cui ossicula fragili putamine, sive Cambro. Joh. Bauhini. Hist. Plant. Fosi. Ebroduni		1659
Pinus Sylvestris montana tertia. Baulini Pinax.	491, Basil 4to.	1671
Larix Sempervirens, foliis quinis, nucleis edulibus. Bregnius. Ekoticarum plant	Fol. Godani	1678
Pinus Sativa, cortice fisse, foliis setoris subrigidis abunda vaginâ quintis. Amman. Sterpes, Ravieres Ruthenicæ.	4to. Petropoli.	1739
Pineaster. Micheli Genera.	223. 4to. Florent.	1729
Pinus foliis quinis, cono erecto, nucleo eduli.		
Haller, Helvet.	150. Fol. Gœtting.	1742
Pinus foliis quinis, cono erecto, nucleo eduli.		
Gmelini Flora Sibirica, l. p.	4to. Petropolis.	1750

Pin à cinque feuilles, dont les Cones se tiennent droits,
et les Neyaux sont bons a manger, ou Alviez, des
Brianconnis

Du Hamel. *Traité des Arbres et Arbustes*. T. 2.
pl. 32. - - - 4to. Paris. 1755

And lastly, Linnæus and Mr. Harte.

Pinus foliis quinis lævibus. *Iter Suanicum*.

Habitat in alpihus Sibiriaë, Tatariaë, Helvetiaë. Val-
lesiaë Baldi, Allobrogum. Tirolensium. Tridentinorum.

Linnaei Species Plantarum. - 8vo. Holmiaë 1763

Pinus Cembra, or *Aphernousli pine*

Harte's Essays. - 8vo. London 1764

From the preceding authors it appears that it was known
and described by them above two centuries ago, and that it
grows on the coldest and most mountainous parts of the fol-
lowing countries:

Switzerland,	Tirol, Trent,	Tartary,
Piedmont,	Vallesia,	Dauphiny, and
Savoy,	Mount Baldus,	Siberia.

As these trees are natives of various countries much colder
than England, and grow on very mountainous tracts of land,
there cannot be a possibility of doubt against their succeeding
here, and their timber arriving at perfection, and will prove a
very valuable acquisition for plantations in such places, where
scarce any of our native trees will thrive.

The *Aphernousli pine*, according to Mr. Harte, is of an
healthy vigorous nature, grows very tall, and will bear re-
moving when it is young, even in dry warm weather, but I do
not recommend the practice.

Its timber is large, and has many uses within doors, or un-
der cover; its grain is finer and more beautifully variegated
than deal, and the smell is more agreeable; it is useful for
wainscoating, flooring, and other joiners' work, and the wood
makes excellent firing for stoves, ovens, and kilns.

The bark of the trunk of the tree is of a whitish cast; and
the branches resemble those of the spruce fir, and the tree al-
together something of the *Weymouth pine*.

The leaves are long, smooth, and are produced by fives:

The cones are of a purplish colour, shaded with black, about
three inches long, the same in circumference, and grow erect,
a dozen weighed fifteen ounces, or about one ounce and a
quarter each; under each scale there are two kernels, and from
a hundred to a hundred and fifty in each cone.

The husk, or sort of shell which encloses the kernels, is
easily cracked, and the kernels are covered with a brown skin
which peels off; they are about as large as a common pea,
triangular like buck-wheat, and white and soft as a blanchéd
almond, of an oily agreeable taste, but leaving in the mouth

that small degree of asperity which is peculiar to wild fruits, and not displeasing. These kernels make a part sometimes in a Swiss desert, and supply the place of mushrooms buttons in ragouts, and on account of their balsamic oil are recommended in consumptive cases. An odoriferous white resin is extracted from this tree.

Another traveller of credit informs us, that he has seen trees ninety feet high, and near ten feet in circumference at their bases.

To Mr. Heim, of Florida Gardens at Brompton, Nurseryman, a native of Switzerland, the public are obliged for having several hundred cones of this valuable tree introduced into England, which he collected in that country some years ago, with several other curious Alpine seeds and plants*.

THEIR CULTIVATION.

In their cultivation it is necessary to imitate, as nearly as possible, their native soil and climate, and as in those countries, where the ground is constantly covered with snow during all the winter months, there is no intermediate season betwixt winter and summer, like our spring, but on the snows melting about April, warm weather instantly ensues; nature therefore indicates that a gentle hot-bed is not improper to sow them upon, to give them a better chance of succeeding here.

All pines and firs in general thrive best in a sandy loam, therefore about the end of March, or beginning of April, make a hot-bed, and have a parcel of boxes or pots, (at least twelve inches deep) filled with good sandy loam; in these plant the kernels four inches asunder, and one inch deep. When the violent steam is gone off, place the boxes or pots on the bed, and water and shade them as occasion requires. By an experiment made of forcing some of the kernels in a stove, since their arrival here, they came up in three weeks, and are shewing already a second shoot, since their seminal leaves, which are from eight to thirteen, but have not had an opportunity of seeing them since.

About June, if the weather proves warm, it will be proper to remove them to a shady border, where they must remain till the approach of winter, and if the stems appear weak, or violent rains should leave their roots bare, spread some loam over them, whenever they require it, and let them be constantly kept free from weeds, and frequently watered in dry weather, to raise them as strong as possible against winter.

On the approach of winter, it will be prudent to put them in a frame placed in a warm situation, with either glasses or

* The meaning of the word *aphernousli*, he says, is from the German word *apher*, a pine, and *nousli*, a small nut, which signifies a nut-bearing pine, on account of the kernels being eaten.

mats over them, because in their native countries, whilst young, they are first covered with leaves and afterwards defended by snow, from the piercing winds; whereas in this country, they would be liable to alternate frosts and thaws, which prove more prejudicial than one continued frost, when defended by snow, and oblige us to shelter in winter, plants which come from such climates.

The following April they will require transplanting, because they will be too much crowded, which will be done with great ease, by their being at such a distance, and as they will then be too small for planting where they are to remain, it will not be amiss to plant each out into single upright pots, and then they are always ready for planting out with balls of earth to them, without disturbing their fibres, and if wanted to be sent to a distance, each ball can be tied up in paper or coarse cloth, and the earth preserved to the roots.

In these pots they may remain for two, or perhaps three, years more, accordingly as they grow, and if you would still wish to keep them longer, for an opportunity of removing them at pleasure, with safety, they must then be planted into baskets about ten feet deep and one foot over, which will preserve them for about three years more, but no pines or firs remove well if transplanted large, and succeed best when not above two feet high.

As the culture of this pine is at present but little known, I would recommend also trying another method, which has been frequently attended with success, with pines and firs, and is less trouble and expence. It is, to sow some of them on a north border of sandy loam, laid at least a foot deep, and to plant the kernels in rows, at the distance of six inches by four, which will permit the ground to be stirred betwixt them with a hoe, and afterwards to be carefully taken up with a trowel, when two years old, and planted in pots.

As the poets in every age, from Homer to the present time, have been stricken with the beautiful part of an alpine landscape, I shall just make short quotations from each, to inspire gentlemen with the ideas of converting their barren British Alps into beautiful landscapes, covered with stately timber-trees, an ornament to their country and an advantage to themselves and their posterity.

Homer paints it in one verse, *ἠνέσφυλλος*. *Iliad* x.

* Virgil, *Caput piniferum Atlantis*. *Æn.* 4. 249.

Lucan, *Rupens piniferæ*, 2. 431.

Valerius Flaccus, *Piniger othrys*. 6. 393.

Statius, *Theb.* *Nutant mutata cacumina montes*. 6.

And then conclude with our poet Cowley, who being passionately fond of agriculture, appears to have painted a forest of mountain *aphernouslis*, with as much justice and sublimity

as if he had sketched out the description at the feet of the Swiss alps :

Sublimi feriunt vorantes vertice nubes.
Quantum despiciunt montana cacumina valles,
Tantum ILLÆ stantes in summo, montibus ipsis
Altius assurgunt; sic stabat turba gigantum,
Sic superinjecta frondoso pelio ossa
Stabant terrores superum. Couleius de Plantis, l. 6.

On forests, forests rise,
Till the top branches touch the dewy skies,
As Alpine cliffs o'ershade the vales below,
So these hang nodding o'er th' aerial brow
Of Alps.—Earth's giants thus provok'd the fight,
(While Pelion groan'd oe'r-pil'd with Ossa's height)
A terror to the gods!

Harte's Essays on Husbandry, p. 104.

I am your's,

RICHARD WESTON.

ON A RICH AND CHEAP COMPOST, &c.

By Dr. Hunter.

IN the last Essay I endeavoured to show that oil, made miscible with water, constitutes the chief nourishment of vegetables. A greater number of proofs might have been produced in support of that doctrine; but I flatter myself that those already advanced will be thought sufficient.

Having reason to believe that my theory was founded upon facts and experiments, I was desirous of converting it to public utility. And as I apprehend that a compost might be discovered, upon the principles advanced, which would come cheap to the farmer, and be of easy carriage, I diligently employed myself in prosecuting the inquiry.

In the course of investigation I took care to reason upon proper data; carefully avoiding every degree of partiality to my system: In philosophy nothing is so delusive as prejudice.

After making various trials, I at last discovered what I so ardently sought after; but as I have not the vanity to think my experiments sufficiently conclusive, I embrace this opportunity to request the assistance of the practical farmer, in order that the merits of the invention may be fully determined.

Should my theory concerning the food of plants be found erroneous, the compost, of course, will be disregarded. But, on the contrary, should it be agreed to, that oil, under certain modifications, made miscible with water, constitutes the chief nourishment of vegetables, then the invention will probably become a subject for future experiment.

Though theory may direct our enquiries, yet experience must at last determine our opinions, for which reason I propose to enlarge my experiments; and as I have no other view

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but the investigation of truth, I shall lay them faithfully before the public, whether they prove successful or not.

We know that a number of experiments, made by different persons; and in different places, are essentially necessary towards establishing the truth of any received opinion in Agriculture. How much more necessary is it to request the assistance of the practical farmer, in determining the merits of a new invention? For such I esteem the compost I here communicate.

Virgil, indeed, has recommended the lees of oil as a manure, and the ingenious Dr. Home has mentioned olive oil; but neither of them reflected upon the absolute necessity of rendering the oil miscible with water, by means of an alkaline salt.

I judge it unnecessary to repeat what I have already advanced upon the food of plants. I shall therefore refer the reader to the first Essay, as it contains the greatest part of the reasoning upon which the following compost is founded.

To make Oil-Compost.

	<i>l.</i>	<i>s.</i>	<i>d.</i>
Take North-American pot-ash 12 lb.	-	0	4 0
Break the salt into small pieces, and put it into a convenient vessel with four gallons of water.			
Let the mixture stand forty-eight hours, then add coarse train-oll, 14 gallons	-	0	14 0
		<hr/>	<hr/>
		£	0 18 0

In a few days the salt will be dissolved, and the mixture, upon stirring, will become nearly uniform.

Take fourteen bushels of sand, or twenty of dry mould. Upon these, pour the above liquid ingredients. Turn this composition frequently over, after adding to it as much fresh horse dung as will bring on heat and fermentation; in six months it will be fit for use.

I apprehend that the above quantity will be found sufficient for an acre: my trials, however, do not give me sufficient authority to determine upon this point.

For the convenience of carriage, I have directed no more earth to be used than will effectually take up the liquid ingredients. But if the farmer chooses to mix up the compost with the mould of his field, I would advise him to use a larger portion of earth, as he will thereby be enabled to distribute it with more regularity upon the surface. I have not yet had any extensive trial of its efficacy upon pasture and meadow grounds: but I presume that whatever will nourish corn, will also feed the roots of grass. When used upon such lands, it should be put on during a rainy season, as all top-dressings are injured by the solar heat.

All kinds of cattle must be kept off the lands for some time, as they will bite the grass too close in quest of the salt contained in the compost, which I have found to be the case in small trials.

I shall here observe, that the oil-compost is only intended to supply the place of rape-dust, soot, woollen rags, and other expensive hand-dressings. It is in all respects inferior to rotten dung: where that can be obtained, every kind of manure must give place to it.

At the same time that dung affords nourishment, it opens the pores of the earth. Hand-dressings, on the contrary, give food to plants, but contribute little towards loosening the soil. This is a useful and practical distinction, and may be applied through all the variety of manures made use of by the farmer.

I presume that the oil-compost resembles the natural food of plants; but I submit that, as well as every thing else, to experience, our unerring guide.

It may be objected, that it has not sufficiently undergone the *putrid ferment*, to attenuate the oily particles. The use of rape-dust, soot, horn shavings, and woollen rags, take off that objection, and at the same time confirm the theory upon which the above compost is founded.

I do not take upon me to direct the experienced farmer in the manner of using this new compost. I would have every person apply it in the way most agreeable to himself. Many things will occur to the practical husbandman, that no reasoning of the philosopher could foresee. By attending to the different ways of using it, we may reap considerable advantages. Improvements may be collected even from the highest degree of mismanagement.

Facts must ever be the foundation of our reasoning. Without them, the philosopher is a kind of *Ignis fatuus*. Instead of unfolding nature, he covers her with a cloud, and endeavours, as it were, to bring old Chaos back again into the world.

Should I presume to instruct the farmer in the management of the compost, I would recommend it to be sown immediately after the grain, and both harrowed in together.

The following experiment, though trifling in its own nature, gave me the first encouragement to prosecute the subject upon a larger scale.—I took four pots, N^o 1, 2, 3, 4.

N^o 1.—contained 12 lb. of barren sand, with 1 oz. of the sand oil-compost.

N^o 2.—12 lb. of sand, without any mixture.

N^o 3.—12 lb. of sand, with $\frac{1}{2}$ oz of slacked lime.

N^o 4.—12 lb. of sand, with 4 oz. of the sand oil-compost.

In the month of March, I put six grains of wheat into each pot, and during the summer I occasionally watered the plants with filtered water. All the time that the plants were consuming the farina, I could observe but little difference in their appearance. But after one month's growth, I remarked N° 1. was the best. N° 2. the next. N° 3. the next. N° 4. much the worst.

In August I made the following observations :

N° 1. had five small ears, which contained a few poor grains.

N° 2. had three small ears, which scarce deserved the name of ears, containing a few grains, much inferior in goodness to the former.

N° 3. had no ears. Only I observed two very small ones within their respective sheaths, which, for want of vegetable strength, never made their appearance.

N° 4. had no ears; the stalks appearing stunted in their growth.

I removed the plants from their pots, and took a view of the roots of each.

N° 1. The roots tolerably large, and well spread.

N° 2. The roots not so large.

N° 3. The roots very short and small.

N° 4. The roots much the shortest, with the appearance of being ricketty.

Upon this experiment I remark :

1. That the oil-compost may be considered as a vegetable food : but that, when used too liberally, the alkaline salt will burn up the roots of the plant, and hinder vegetation. For which reason I would recommend the compost to be exposed to the influence of the air, for some months, before it is laid on.

2. That lime contains no vegetable food, and is, in its own nature, an enemy to vegetation. It is, however, of excellent use in assisting vegetation, in the manner described in the first essay.

My experiments teach me, that all kinds of soils may be benefitted by this manure. The limestone, gravelly, sandy, and chalky soils seem to require it most. The rich loams and good clays have nourishment within themselves, and stand more in need of the plough than the dunghill.

It is observed by farmers, that rape-dust seldom succeeds with spring-corn, unless plentiful rains fall within a few weeks after sowing. I have more than once made the same observation upon the oil-compost, which induces me to recommend it for winter crops only. From the unctuousness of its nature, it is more than probable, that it should lie exposed for a long time to the influence of the weather, which benefit it is deprived of when used for barley, and such crops as are sown late in the spring. I am confirmed in this idea, from repeat-

ed experiments made with the compost upon turnips, which generally proved unsuccessful. But at the same time I invariably found that those parts of the field on which the compost had been spread, produced the best crops of grain the following year. From this slow manner of giving its virtues, it seems to be an improper dressing for all plants that have a quick vegetation.

Agreeably to the theory advanced in the first Essay, I presume that all lands, which have been exhausted by frequent crops, are robbed of their oily particles, and consequently have become barren. The oil-compost, as it plentifully restores particles similar to those that are carried off, has a fair appearance of proving an excellent restorative. To lands under such circumstances, lime alone is the worst manure that can be applied.

This last observation naturally leads me to wish for a general history of manures, upon sound and rational principles. I cannot help regarding that necessary part of husbandry, as a subject but imperfectly understood. Whoever succeeds in that difficult task, will prove himself a real friend to mankind. Without it, agriculture must remain a vague and uncertain study.

REGULATIONS FOR MAKING POOR LAND RICH.

FIFTH ESSAY ON RURAL ECONOMY.

To the Editor of the Agricultural Magazine.

SIR,

THIS Essay, continued from No. 42, page 18, was originally written for men of the first consequence in the state. But as I do not see the least prospect of due patronage, I now offer it to the world at large. I may perhaps send two or three more papers, and then let the subject drop, although I have for years had the thought much at heart, and dedicated time and expence for forming a rational system of agriculture, with a view to increase the provisions of the country, for the benefit of society. How far, however, (were it properly supported,) it might operate, it is impossible for any one to say.

Seven years ago I solicited the honor of some conversation, and also about four years since, upon this subject, but not having met with the encouragement expected, I have been tempted to detail the system, and have given these essays in order to bring the business before the public, or rather to lead the public mind to receive it, should the general outline, when explained, be found worthy of attention.

The Sixth Essay may be what I wrote as a Prize Essay, published with permission from the Board of Agriculture, for

which I had the honor of a medal, the subject was *Growing of Wheat*; and the mode there specified, properly reduced to practice, would probably yield a much greater quantity of fine corn on the same breadth of land than any other plan before thought of.

Another essay for explaining the necessity of about ten clauses in an act of parliament for directing the system for establishing Herdsmen's-farms, under the sanction of government, but without being attended with any expence to the public, or compulsion on individuals.

The eighth paper to prove that all the principles in agriculture are virtually hinted at in three short sentences, formed and originally published by me, and which, when worked upon, would double the whole *productive system of provisions*, on just as much arable land of naturally kindly soil, but which was unproductive from no other cause than weeds, poverty, and neglect.

Fortunately the poorer lands are more applicable to our purpose than the richer would be, because the product of the latter cannot be doubled, but those of the poorer sorts may, and in proportion as the system of the Herdsmen's-farms advances, we shall likewise have the additional benefit of doubling the price of the land. The world must remember, that we are not attempting to bring back the prices of former times, the opulence of the country will not admit of that, but what I am aiming at is, to introduce such a regular supply from the product of the soil, as to keep provisions as near as possible at a medium price, as either extreme would operate to mischievous purposes.

A few more essays may close the business, and when the papers are collected, form a volume sufficiently respectable, I hope, for making a valuable library book of agricultural tracts. But I am by no means satisfied with this my own mode, unless it has the honor of sanction from government, for without the detailed thoughts are supported by administration they cannot produce any material effect.

The Herdsman's-farm, worked under a course or tilth of four or six years, comes round very well, and the land is constantly employed to valuable purposes. What quantity of land should be assigned to each may be difficult to determine, as it must be governed by local circumstances: but I am inclined to say thirty-two acres; as that quantity will support a sufficiency of stock for producing active valuable manure, and may be easily managed by two peasant families, a man, his wife, and children, at seventeen shillings a week, as herdsman. A deputy, his wife, and family, at sixteen shillings, and each a small cottage. This establishment, when brought into due return of crops, will produce much fruit, milk, but-

ter or cheese, poultry, meat, and corn, with numerous successive litters of young pigs, and each of these articles must be brought into regular detail before they can be understood for practice.

It is allowed, that there are in the fifty two counties of England and Wales three millions of acres of land, properly coming under the description alluded to, and were but one or more of these farms near to every large village or town, as conveniency might offer, only consider what a wonderful increase of product would from hence be sent to market.

It appears perfectly rational to expect by the powers of money, conducted under a judicious system, and strictly attended to, that there may be drawn from the surface of the soil only, a sufficiency of manure for making poor land rich, without any material expence for manure, after the first year. Undoubtedly the setting out will be heavy, for on the commencement there must be a very good fallow with plenty of manure to secure a full crop of turnips; after this time the system will support itself when brought into a regular alternate succession of two feeding crops, followed by one white or exhausting crop, in every two years, and the regular tilth coming round once in six years. The feeding crops must be rigidly eaten off upon the land, and applied to no other purpose. The judgment of the herdsman will, in some measure, appear, by his securing the regular quantity of food and number of stock to suit with each other. Every description of stock must be kept in high conditon, and there is no taking one step in the business without a power vested somewhere, for borrowing, paying, and regulating money concerns, with other restrictions, &c. &c.

The tilth of the six years is as follows, for the herdsmen's farms :

First year, rye or tares, to be eaten off as soon as possible, and turnips sown directly after.

Second, barley and clover.

Third, first crop and second crop of clover mown, put into racks, and eaten upon the land.

Fourth, the wheaten crop.

Fifth, one acre or more of potatoes.

One ditto, cabbages.

One ditto, carrots.

One ditto, Parsnips.

Each to be taken off in time for a good wheat season, which makes the sixth.

Should 32 acres be the assigned quantity of land and the parties are desirous of fruits, take two acres for that purpose.

Fruit 2 Acres.
The regular rotation of crops under the plough being
6 and 4 acres in each, making 24
But first in some convenient corner, or as may best
suit the soil, before the land is marked out, appro-
priate six acres for growing grass and rough hay
for the oxen, cows, and sheep 6

Thus you have applied the 32 Acres

Which 32 acres are to produce Acres.

<i>Fruit</i>	2	} <i>Forty acres</i> <i>in crop on 32</i> <i>acres of land</i> <i>with no fal-</i> <i>low, and the</i> <i>weeds subdued</i>
<i>Wheat</i>	8	
<i>Barley</i>	4	
<i>Rye and Tares</i>	4	
<i>Turnip</i>	4	
<i>First and second crop of Clover</i>	8	
<i>Cabbage, Potatoes, Carrots. and Parsnips</i>	4	
<i>Grass and Rough Hay</i>	6	

I am, Sir, the Public's Friend,

WHEAT & SHEAF.

ENUMERATION OF PATENTS LATELY ENROLLED.

1803, JAMES GAYLEARD, of New Bond street, Mid-
 Feb. 1. dlessex, Staymaker; for long-stays, short-stays, and
 corsetts, on an improved construction.

— 5. Stephen Hooper, of Walworth, Surrey; for ma-
 chines, or machinery, upon improved principles, and me-
 thods of using the same, for the purpose of cleaning creeks,
 bars of harbours, and preventing bars from making.

— 10. William Henry Clayfield, of the city of Bristol,
 Wine-merchant; for a method of reducing and extracting
 lead, and other metals, from a compound substance, com-
 monly known by the name of Regulus.

— 21. Timothy Cobb, of Banbury, Oxfordshire, Wool-
 len-manufacturer; for improvements in the manufacturing
 a certain kind of piece goods, called Shag, or Plush.

— 23. Jonathan Woodhouse, of Ashby-de-la-Zouch,
 Leicestershire, Engineer; for a method of forming a cast-
 iron rail, or plate, which may be used in making iron-rail
 roads, or ways, for the working and running of waggons
 carts, drays, and other carriages, on public and other roads;
 and also, a new method of fixing, fastening, and securing,
 such cast-iron rail, or plate, on such roads.

— 28. Robert Kirkwood, of Edinburgh, Engraver, and
 Copper-plate Printer; for improvements on the copper-
 plate printing-press.

— 28. Thomas Johnson, of Bradbury, Cheshire, Wea-
 ver; for a method of preparing, and dressing cotton warp.

Feb. 28. Robert Mason, of Cumberland-steet, Portsea, Hampshire, Gentleman; for improvements on a common waggon, whereby the same may be separated, and used as two carts, which he denominates the "Patent Hampshire Waggon."

— 23. Benjamin Haden, of the parish of Sedgley, Staffordshire, Bagging Weaver; for an improvement in the manufacture of bagging, for packing of nails, and other purposes.

CRITICAL CATALOGUE.

Georgical Essays. By A. Hunter, M. D. F. R. S. L. and E. In 4 vols.
8vo. with plates.

THE design and execution of this work cannot be better explained than in the words of Dr. Hunter's preface, we shall therefore transcribe it without apology.

"About the year 1770 a few gentlemen formed themselves into a society at York, for the purpose of giving encouragement to the Agriculture of their respective neighbourhoods; and in order to confer stability and reputation upon their undertaking they took upon themselves the title of the *York Agricultural Society*, with a President, two Vice-Presidents, a Treasurer, and Secretary. Convinced that respectability was unattainable without responsibility, the society agreed to affix their respective signatures to all the papers read at their board, and they also agreed that such papers as were thought to possess distinguished merit should be published in a work bearing the title of *Georgical Essays*. In about twelve months from the commencement of the institution, the first volume made its appearance, and under the most favourable circumstances, the society were induced to promise a continuation of the work; but in consequence of the death of many of the most active members, the publication was discontinued so that only one volume exists to record the industry and attention of the York Agricultural Society. The society is now no more, its dissolution having taken place about 18 years ago. Having had a principal share in the publication of the *Georgical Essays* I feel myself called upon not to suffer them to pass into oblivion; and I the more willingly engage in the undertaking as I mean to make it the basis of a more extensive publication. It is my intention to draw into one focus, all that is widely diffused through numberless volumes of Agricultural information; and in so doing I expect to be able to exhibit to the favourers of Agriculture, a field well cultivated, and free from all unsightly and noxious weeds. In this proposed collection there will be some papers that have never appeared in public; but by far the greatest number have been published in different periodical works. The distinguished authors of these papers will, I flatter myself, approve of this method of rendering their public spirited exertions more generally known, for it cannot be expected that a number of high-
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priced books, all of them containing some papers of useful information, can be the object of general purchase."

After this exposition by the compiler it will be the more unnecessary for us to enter into any examination of the varied contents of these volumes, as our limits would not admit even of a recapitulation only of the very numerous papers and essays of which they are composed, and of which Doctor Hunter's contributions form no inconsiderable portion. We have, no doubt, but that the practical as well as the speculative Agriculturist will acknowledge his obligations to the compiler for concentrating from the various sources which he has consulted, such a body of useful information on a subject so intimately connected with the welfare and prosperity of States, and of this kingdom in particular.

It would have been, in our opinion, a considerable improvement in the plan of this selection if all the papers on the various branches of rural and domestic economy had been arranged under their respective heads; it would at least have added materially to the utility and convenience of the work.

At the conclusion the Doctor signifies his intention of publishing two volumes annually, on the same plan, if the work here announced, experienced a favourable reception from the public.

We already have, and shall in future, avail ourselves of the author's permission, to lay before our readers such of the original papers that have appeared for the first time in this collection, as we conceive most worthy of the attention of the practical farmer.

II. *L'Agriculteur du Midi; the Southern Farmer; or, a Treatise on the Agricultural system proper for the Southern Departments, which establishes the principles of cultivation, shews their application, points out their effects, and furnishes the means of restoring to exhausted land its original fecundity.* By André Louis Esprit Sinety, Member of the Academy of Marseilles, of the Council of Agriculture, Arts, and Commerce, of the Department of Bouches du Rhone. In 2 vols. 12mo. with an Engraving representing an Oil Mill, invented by the Author.

This work is the result of the theory and practice of a zealous and intelligent agriculturist, of a good citizen who incessantly aiming to render himself useful, divides his time between rural labours, which he directs, the operations of the Academy of Marseilles, at which he presides, of the Council of Commerce, which he enlightens with his sage patriotic ideas.

The southern departments of France situated between the eastern Pyrenees and the Var, but more particularly the territory of Marseilles and Aix, and the districts situated along the coast, require a particular method of culture.

Excellent instructions and complete treatises on agriculture proper for countries in a high state of cultivation, have been long ago published. But countries where agriculture is in a low state, such as the districts in the south of France, are absolutely destitute of instruction, or only possess works suited to certain productions; they have no complete treatise, and still less any elementary principles.

If farmers have been able to fertilize a soil almost universally sterile and exposed to constant aridity, and the occasional asperity of the climate, it has only been by efforts of the most active industry. They

have obtained good crops only by multiplying the vegetables capable of being naturalised, and by continual laborious persevering opposition to the rigour of nature.

The soil of these districts, naturally unfruitful, has become still more sterile by being exhausted. Worn out with the ancient method of culture, which dates from the period when the Phœceans, the founders of Marseilles, taught the natives the art of cultivating the precious plants and trees which they brought with them from Greece, the soil has every year become worse and worse.

All historians have described these parts as being originally sterile, and *Montesquieu* upon occasion of the foundation of Marseilles, says the sterility of its territory compelled the citizens to be industrious, in order to supply what nature denied them.

The soil of the ancient Provence is almost entirely of the same nature, and nothing but industry, attended with the most laborious perseverance and the greatest expence, could ever have rendered these parts fertile. But this fertility, forced for upwards of two thousand years, is an additional cause of the degeneracy of the soil, and if it be considered what a discouragement the aridity of the climate (which annually increases owing to the total destruction of the woods,) must have been to farmers, their indefatigable efforts to obtain some productions from this ungrateful soil cannot but excite astonishment. Yet there is no country that produces so great a quantity of precious vegetables, or that presents to the view of the observer a more pleasing, more varied, and more laboured cultivation. The industry of the first cultivators of this country knew how to turn even the most barren rocks to account. Wheat, grain of every kind, pulse, all sorts of fruit trees, but principally the vine and olive, are there cultivated. The ancient method of culture is still followed by the farmers with little variation, and produces a gradual and indeed annual deterioration of their property.

The author who had made these important subjects his study for above twenty years, has ascertained the original and accidental causes of this degeneracy. He is convinced that if it be sometimes occasioned by the nature of the soil and climate, it must more frequently be attributed to the ignorance, and he has attempted as much as possible to diminish the influence of former, and to correct those which originate in the negligence of farmers, by methods of improvement yet unknown.

He has ascertained that the ancient mode of cultivation is the only one suitable to this ungrateful soil; but that the farmers of the present day being more negligent and less industrious, are continually removing farther from the principles to which ancient cultivators of these parts owed their success, and which is an additional cause of their degeneracy.

From numerous experiments he concludes, that the art of breaking up and laying down lands, and of farming plantations, is still in its infancy. And this most essential branch of agriculture, by which alone the soil can be regenerated, is the most important object of the instructions he has published for the benefit of his fellow citizens.

His work consequently contains two parts. The first explains to the proprietors, the ancient method of cultivation, the customs

and rules which farmers have abandoned, and the abuses introduced by the indolence, negligence, and frequently the immorality of those to whom proprietors are obliged to entrust the management of their concerns.

He calls their attention to all these subjects. In this manner he analyses the customs and rules of agriculture, he demonstrates their excellence by reasoning grounded on the nature of the soil, climate, and productions. He proves, by the success of his experiments, the improvement of which this method is susceptible.

Suiting himself always to the meanest capacity, his instructions possess that clearness and plainness which render them useful to every one.

The different operations for vines, olive trees, and for land intended to be sown; the seasons proper for those various operations, the weather suitable for performing them, the methods of counteracting the prejudicial effects of bad management, the abuses introduced through the ignorance of farmers; the rules of agriculture which according to ancient custom form a kind of rural code, regulating the respective interests of proprietors and their servants, the annual harvesting of the most valuable crops cultivated in those parts; the important theory of manures, the manner of preparing and employing them according to the quality of the soil, and the various productions; lastly, the danger of abandoning the ancient modes of culture, and the incalculable losses proceeding from their disuse,—such are the subjects of the first part of this work, which may justly be considered as an elementary one.

The second part, which is of still greater importance, being particularly designed to improve the soil, its productions and culture, only concerns proprietors; and treats of every thing belonging to the management of a farm.

The vine and olive, the most valuable vegetables naturalized and cultivated in these districts, appeared to claim his particular attention. He was particularly struck with the decay to which they are subject. But without attributing it like most other agriculturists to the inclemency of the climate and the severity of the seasons, he has sought its causes, and found them in certain errors in their cultivation, in the thoughtless methods of planting and re-producing them from stocks degenerated by time or by accidental causes, and in the faultiness of common practice.

The knowledge and employment of different kinds of land proper for the vine and olive, the situation and aspect of the soil, its preparation and disposition when cleared and replanted, the preparation and selection of the different kind of plants according to the nature of the soil; the method of planting, rearing, propagating, and treating them when diseased, of destroying whatever is inimical to them, of preserving them in a state of fecundity, to improve their productions and keep them, as well as their fruit, from every thing that might injure them; and lastly, the means of ameliorating an impoverished soil—all these objects are treated of methodically, in the second part. The precepts of processes which the author inculcates present to agriculturists methods hitherto unknown, of the success of which they are assured by physical demonstration.

In this manner he treats of the culture of the vine and olive, which may be said, in many respects, to begin its infancy, from the principle of their reproduction to the cessation of their growth. The simplicity and utility of the methods and processes he prescribes, render their application the more easy, and demonstrate their necessity and advantages.

There doubtless exist particular treatises on the cultivation of those productions, but some recommend methods, the success of which is grounded only on experiments made in other countries, and are inapplicable to the nature of the soil and the aridity of the southern provinces. Others have with great trouble analysed the diseases of these vegetables, and ascertained the different species of insects which attack and destroy their fruits, and particularly those which injure the olive. But they have not prescribed any methods of cure for the most common diseases of those trees, nor the means of destroying their enemies. But most of these treatises possess rather the merit of erudition than that of instruction, and being suited to the capacity of farmers; nor can any of them be considered like the present work, universal treatise on agriculture for those provinces.

III. *Facts and Observations relative to Sheep, Wool, Ploughs, and Oxen; in which the Importance of improving the short-wooled breeds, by a Mixture of the Merino Blood is deduced from actual Practice. Together with some Remarks on the Advantages which have been derived from the Use of Salt.* By John Lord Somerville, 8vo. 3s. 6d.

To the meritorious and patriotic exertions of men distinguished for birth, affluence, and talent, this country is doubtless indebted for the improvements lately made in almost every branch of practical agriculture. The improvement of our breeds of sheep in particular has engaged that portion of attention so justly due to the important subjects involved, the staple manufacture of the kingdom, and the supply of the public markets.

Amongst the most zealous labourers in a cause, in which not only the nation at large, but each individual is more or less concerned, must be placed the late President of the Board of Agriculture. Of his exertions for the advancement of his favourite pursuit, whilst in that distinguished situation, we need not here remind the reader. Our object is to make him acquainted with the fresh proof his lordship has given, in the pamphlet before us, of his unwearied assiduity to extend the knowledge of whatever may be beneficial to his country.

The principal object of the work here announced, is to shew the superiority of the Spanish Merino or crosses from that breed, both in the quality of their fleece and of their meat. "No speculative opinions (says his lordship) are here brought forward, but the author has, without any embellishment of language, adduced such facts as have, for some years past confirmed, and still continue to confirm, that of which as a matter of duty rather than of inclination, he was led to treat. He has now brought these subjects to a conclusion, and he trusts a satisfactory one."

The noble author begins by detailing from actual experience the advantageous results from crossing the Ryeland and Spanish breed.—

"Eighty-six ewe hogs of this mixed breed carried 235lb. 3 oz. of well-

washed wool, which at 3s. 3d. per pound amounted within a very few shillings to 37l. per pack. After the committees of the Bath Agricultural Society's decision, its value may safely be rated at 3s. 6d. per pound, or 42l. sterling, per pack. The cross with our South Down sheep, both with respect to the frame and wool, keeps pace with that of the Ryeland. Having a flock of each sort I am unable to give the preference to either."

We can state from good authority that the price mentioned by his lordship of the half Spanish wool, is the current price at market, and that there is a constant demand for it.

His lordship very justly observes, that the public in general are such slaves to ~~see~~ in the purchase of meat, and observes that the small sheep, firm in ~~the~~ grain, is without doubt a more marketable commodity. In confirmation of his own opinion, and the argument he advances, he says: "One of the first cutting butchers in London has often been heard to say, that he could not afford to buy fat coarse-grained sheep; for that besides the loss in spine fat, which he was obliged to cut from roasting joints, there was not lean enough to support the fat, which therefore roasted away; and that so long as meat bears a better price than tallow, so long he must deal in South Downs, and sheep of that description."

The work of M. Laforest on the Introduction of the Merino breed into the various countries of Europe, engages a considerable portion of his lordship's attention,

The observations on the advantages that have been derived from the use of salt for oxen and sheep, appear to deserve the serious consideration of agricultural men. The practice, his lordship believes, is not to be found any where in the kingdom, excepting on his own estates; but doubtless its beneficial effects need only to be publicly known in order to make it generally adopted.

In a letter to M. François de Neufchateau Lord Somerville very clearly demonstrates the superiority of his patent double-furrowed plough, over those in common use. This is succeeded by an account of the cattle shows of 1802 and 1803, at Langhorn's Repository for premiums offered by his lordship. With regard to those offered for oxen he says: "Our only object is the introduction of oxen in the labour of husbandry, and by no means to advance one good working breed at the expence of another."—He then proceeds: "How many millions of money have been expended in procuring corn by importation within the last four years, and how cruelly thousands of our fellow subjects have suffered from the want of bread, need not here be urged, for the occurrence is too fresh in every memory; but we are bound to repeat what before has been advanced, and without contradiction; that taking the number of heavy cart-horses at 500,000, which probably comes far short of the actual number; and admitting 200,000, from local circumstances to be useful, the remaining 300,000 are totally superfluous, the latter consume at the rate of one peck of corn per day for nine months in the twelve, sixty-three bushels per annum, which nearly equals thirty-six bushels of wheat, equal to the average bread of seven persons, during the whole year, whereby it cannot be denied that 300,000 cart-horses consume the bread corn of 2,100,000 persons, which admitting the population to be ten millions

of persons (Ireland not included) is more than a fifth part of the whole, and which cannot have cost much less than twenty millions of money. We also stated a circumstance worthy to be repeated; that in the year 1754. the inordinate use of cart horses began to prevail, trespassing in many instances on the natural inhabitant the ox: about the very same year our exports of corn began to abate, and they have kept pace with each other: in 1774 these exports, except in an instance or two, ceased altogether; from that time the import commenced, and has, together with an immoderate use of cart-horses, increased to this day. They have gone hand-in-hand together."

This much will be sufficient to shew the utility of this little work, and the patriotic intentions of its noble author, in presenting such facts to the consideration of landed proprietors and farmers in general, as if duly attended to, cannot fail of producing incalculable national benefit, as well as great individual emolument.

HISTORY.

National Transactions.

GREAT BRITAIN.

IN the appearance of the political hemisphere, little if any alteration has taken place since our last. With regard to the question of peace or war, policy must declare in favor of the former, but yet the present armament must be considered a matter both of prudence and necessity. The spirit with which we have engaged in it will be a useful lesson to the First Consul, and teach him that we can punish any aggression or resent any insult that threatens to endanger the security, or tarnish the honor of the nation.

An account is said to have been received from the Cape of Good Hope, stating the surrender of that colony to the Dutch forces sent thither for the purpose of taking possession of it.

We shall proceed to our usual brief statement of the proceedings of Parliament, previous to its adjournment for the Easter recess.

HOUSE OF LORDS, Monday, March 21. Lord Carlisle moved for a return of the number of artificers employed in the dock yards from the month of May last to the present time. The motion was objected to by Lord Pelham and the Lord Chancellor, who observed, that nothing had been brought forward in support of it; it was accordingly withdrawn.

Tuesday, March 22. The Irish postage bill was read a first time.

Wednesday, March 23. The Paddington canal bill was read a third time and passed. The Irish Bank restriction bill a first time, and the Irish postage bill a second time.

Friday, March 25. Lord Pelham presented a Message from his Majesty (similar to the one presented on Thursday in the lower House) which was ordered to be taken into consideration on Monday. The second consideration of the insolvent debtors' bill was ordered for Thursday.

Monday, March 28. Lord Ellenborough, in consequence of having moved for the postponement of the Irish chalking bill, presented a new bill to the House, the second reading of which was referred to the first Tuesday after the Easter recess.

Tuesday, March 29. The militia officers' bill, the clergy residence bill, and several other bills were brought up from the House of Commons, and read the first time.

Wednesday, March 30. The clergy residence suspension bill was read a second time, after some observations from the Bishop of St. Asaph, who objected to the continuation of the suspension.

Thursday, March 31. On the second reading of the militia officers' bill, Lord Carnarvon rose and made several objections to it, considering it a decided departure from the principles on which the militia of the country was originally founded. He was replied to by Lord Hobart and the Duke of Montrose, and after a long conversation, the question being put, there appeared—Contents 41, Non-contents 2. The bill was accordingly read a second time, and committed for Monday.

The House in a Committee on the clergy residence suspension bill, the Bishop of St. Asaph renewed his objections, and moved an amendment, that in place of the words, "8th of July," the words "13th of May," be inserted. The Lord Chancellor, Lord Alvanley, and Lord Ellenborough, spoke in favour of the 8th of July, principally on the ground that it would give more time to the learned and right honourable gentleman in the other House to bring forward his intended bill; they at the same time declared their intention of opposing any future suspension bill. The amendment was accordingly withdrawn, and the bill went through a Committee.

Friday, April 1. The clergy residence suspension bill was read a third time and passed.

HOUSE OF COMMONS, *Monday, March 21.* The clergymans' non-residence bill was read a second time. The resolutions of the Committee on the India Budget were read and agreed to. The Master of the Rolls gave notice, that he should shortly move for leave to bring in a bill to exempt the Roman Catholics of this country from taking any oaths but the oath of allegiance, to entitle them to the benefit of the 13th of the King.

Tuesday, March 22. The report of the Committee on the petition of the woollen manufacturers was ordered to be taken into consideration on Tuesday next. The Grenada loan bill was read a second time, and the Irish bank restriction bill a third time, and passed. The House in a Committee on the clergy non-residence bill, the blank for the time of its limitation was filled up with 8th of July next. The House went through a Committee of the militia officers' bill; ordered to be reported on the morrow.

Wednesday, March 23. A new writ was ordered for Brackley, in the room of General Egerton. The Roman Catholics bill was brought up and read a first time. The House in a Committee of Supply; the Chancellor of the Exchequer stated the whole sum that would be necessary at present amounted to 909,000l. On the report of the militia officers' bill, Mr. Windham made several objections to the appointment of officers not duly qualified; to obviate which in some measure, the Secretary at War moved a clause, by which the Lord Lieutenants should not have power to appoint unqualified persons to any rank higher than that of captain. The bill was ordered for a third reading on Monday.

Thursday, March 24. The report of the Committee on the Great Grimsby election was ordered to be taken into consideration on Friday April 1. The non-residence clergy's bill was read a third time and passed. Committee were ballotted to try the merits of the election for Oakhampton and Glasgow, Renfrew, &c.

The Chancellor of the Exchequer presented to the House the following Message from the King:

"His Majesty having taken into consideration the eminent services of Sir James Saumarez, Bart. and particularly the brilliant victory obtained by him and the Squadron of ships under his command, over a superior Squadron of Spanish ships in the Straights of Gibraltar, on the memorable 12th of July, 1801. has thought it necessary to confer upon him an annuity of 1,200l. a year during his natural life; and recommends the same to the consideration of this House." Ordered that his Majesty's Message be entered on the Jour-

nals, and that a Committee of the whole House do take it into consideration to-morrow.

Friday March 25. In a Committee on his Majesty's Message, the Chancellor of the Exchequer moved, "that the annual sum of 1,200l. be granted out of the Consolidated Fund, to his Majesty, in order to be settled on Sir James Saumarez, Bart. for life; and the same annuity do commence from the day of the action fought in July, 1801, off Algiers," agreed to. The House in a Committee of Ways and Means, the Chancellor of the Exchequer moved "that the further sum of four millions be granted to his Majesty by loans on Exchequer bills—agreed to, and ordered to report on Monday.

Monday, March 28. The militia officers' bill was read a third time and passed.—Leave was given to the Secretary at War, to bring in a bill for increasing the allowances made to innkeepers for soldiers billeted on march. The reports of the Committees of Supply respecting Sir J. Saumarez, and of the Committee of Ways and Means, were read and agreed to, and bills ordered.

Wednesday, March 30. The House went through a Committee on the Grenada Loan bill, and the chairman reported progress, and asked leave to sit again.

Thursday, March 31. The Roman Catholics' oath bill was read a third time, and passed.—The Grenada Loan bill, Sir J. Saumarez's annuity bill, the four millions loan bill, and the American commissioners' bill, were severally committed, and the reports ordered for to-morrow. The innkeepers' allowance bill was read a first time, and ordered to be read a second time to-morrow.

Friday, April 1. The St. Pancras workhouse bill went through a Committee. The woollen manufacturers petition was ordered to be taken into consideration on Wednesday. The innkeepers allowance bill was read a second time. Sir James Saumarez's annuity bill went through a Committee. Adjourned.

Monday, April 4. Sir James Saumarez's annuity bill, and the four millions Exchequer Bills bill, were read a third time and passed.

Thursday, April 5. Leave was given to bring in a bill, authorising the Lord Chancellor and the Lords Keepers of the Great Seals of Great Britain and Ireland respectively, to direct the sale, on mortgage, of the freehold properties of lunatics. Mr. Tierney moved an account of the sums paid into, and charges upon the consolidated fund, from the 5th of January, 1802, to the 5th of January, 1803, distinguishing the quarters. He also moved for an account of the net produce of the taxes for the one year, ending the 5th of January, 1803, distinguishing the quarters. Both accounts were ordered.

On the motion for the second reading of the coroners' increased allowance bill, Mr. Shaw Lefevre moved an amendment, by inserting instead of the word "now," the word "this day six months;" on which the House divided, when there appeared for the amendment 49, against it 61. The bill was accordingly read a second time, and ordered to be committed.

The report of the Committee on the Irish Revenue Act was brought up and agreed to. The American commissioners bill was read a third time and passed.

Wednesday April 6. The Lunatics property bill was read a first time, as was also the bill continuing the Irish Revenue Acts. The House in a committee of supply, it was ordered on the motion of Mr. Tierney, that 12,650l. be granted to George Martin, jun. an American Loyalist.

Sir W. Scott, after a prefatory speech, moved "That leave be given to bring in a bill to regulate the mode of spiritual persons holding farms, and to render more effectual the residence of the Clergy." Granted.

Thursday April 7. The Innkeepers' subsistence rates bill was read a third time and passed. The House went into a Committee on the various Acts

proposed to be repealed by the Committee on the Woollen Clothiers petition, and leave was given to bring in a bill for repealing, altering, and amending the provisions, regulations, and dispositions of the said acts, so far as the same relate to the length, breadth, and weight, to the tempering, stretching, and straining, of woollen cloth, to the boiling of wool, &c.

The report of the Committee of Supply was brought up and agreed to.

The Chancellor of the Exchequer brought up the bill for amending and rendering more effectual the law relating to spiritual persons holding farms, and enforcing parochial residence—read a first time, and ordered for a second reading on Thursday the 21st instant.

The report of the Committee on the Grenada Loan Bill was brought up, and after a short discussion agreed to.

On the motion of Mr. Addington, it was agreed that the House adjourn to Tuesday the 19th instant. Mr. Patten having previously given notice of his intention to move an enquiry into the conduct of his Majesty's Ministers immediately after the recess.—Adjourned.

SWITZERLAND. In Switzerland there are daily indications of the stubborn spirit of independence which still reigns in the Cantons. Schwitz has elected the patriot General Aufder Maur, to be the Captain General of the Militia.

An address of thanks was voted to Bonaparte, on the specific ground that he had restored to them their ancient constitution, the only one adapted to the wants, or consistent with the wishes, of the people. In all the Cantons where the fewest changes have been introduced, the inhabitants appear more disposed to resume peaceful habits. In the aristocratic Cantons a spirit is daily discovering itself, which nothing but the presence of French troops can prevent from breaking out into acts of direct hostility to the constituted authorities.

ITALY. It was lately stated that the independence of Malta was to be guaranteed by Russia and Prussia. That appears to have been false. The artifices of France with regard to Malta are still more apparent, from the circumstance of Thomasi, the newly appointed Grand Master, being the creature of Bonaparte; and his Lieutenant, M. De Busy, being, contrary to the spirit of the Treaty of Amiens, a Frenchman.

M. de Thomasi, the Grand Master, dispatched M. de Busy, invested with full power to take possession of the island, where he arrived on the 28th of February. His first step was to demand the delivery of the place, to which he received only a verbal answer in the negative, from the British Governor; but not satisfied with this, he wrote a letter, containing a formal demand of the place, in virtue of the 4th paragraph of the 10th article of the Treaty of Amiens. To this address Sir A. Ball returned an explicit answer, stating, that as some of the Powers invited by the terms of the 10th article of the Treaty to guarantee the independence of Malta, had not yet acceded to that measure, he did not think himself authorized to put an end to the Government of his Majesty in that island, until he received special instructions from his Court.

Accounts from Genoa state that if a rupture takes place between France and England, a numerous Corps of French troops will proceed to Sicily, with the consent of the King of Naples, to undertake from thence an expedition against Malta. The coasts of Genoa and Tuscany have been put in the best state of defence. The garrisons of the islands of Elba and of Corsica have been reinforced. General Murat will command in Chief in Italy.

GERMANY. Should hostilities be unfortunately renewed between England and France, his Imperial Majesty, it is said, is determined to observe a *strict system of neutrality*. This resolution has been communicated to the Ambassadors of those nations. The neutrality of Austria is to be most rigidly observed in the harbour of Trieste, and the other ports which the Emperor possesses in the Mediterranean. The harbours are to be open to the men of war

and merchantmen of both nations, who may also take in provisions there. It being, however, Bonaparte's avowed system, in case of a rupture, to set every Continental Power against Great Britain, this determination has been received with apparent displeasure by the French Ambassador Champagne.

The Austro-Venetian country will, it is said, be divided into seven provinces, viz. Venice and Dogado, the Friule, Treviso, Padua, Vicenza, Verona, and Bellune, each of which will be governed by a Provincial Captain.

A deficit to the amount of two millions has been discovered in the Imperial Treasury of Vienna. Some persons strongly suspected, have been arrested.

The marriage of the Archduke Palatine with the Princess of Baden, who is now at Petersburg, will be celebrated at Cracow, where the Emperors of Germany and Russia will meet upon the occasion.

FRANCE. The First Consul continues his preparations with unabated assiduity, doubtless in expectation of overawing the British government into an accession to his demands. Yet the general opinion even in France, appears to be that no rupture will ensue. The vigorous measures of the British government are stated to have been as unexpected as they were unwelcome to his Consular Majesty.

The differences between the United States and Spain, on the subject of the Mississippi, are said to be in a train of adjustment, through the mediation of the First Consul, who has informed the American minister at Paris, that the interruption of the navigation of the Mississippi, had been the result of mistake, and that measures should be adopted in the cabinet of Madrid to remove all subjects of complaint.

Some of the expeditions fitting out for the colonies have been countermanded, and the troops will be employed in the defence of the coasts, or perhaps in an attempt at invasion, should the negotiations terminate unfavourably to the continuance of peace.

The plan which was lately presented to the French legislature respecting the National Bank, has been withdrawn, and one entirely different presented in its stead. The provisions of the new project are as follows: "The capital of the Bank of France shall consist of 45,000 shares of 1000 francs each principal stock, beside reserved stock. There shall be no new call upon these shares. The yearly dividend from the 1st Vendemiaire, year 13, (Sept. 23, 1804,) shall not exceed six per cent. on each share of 1000 francs. The excess of the profits over the annual dividend shall be converted into a reserved fund. The reserved fund shall be converted into five per cent. consol stock, on which a second dividend shall take place. The present reserved fund shall be equally converted into five per cent. consol stock. The dividend for the last six months of the year 11, shall be regulated agreeably to the old usages of the bank. The dividend for the year 12 shall not exceed eight per cent. including the dividend from the reserved fund."

HOLLAND. The result of the uncertainty as to peace or war, is a total stagnation of Dutch commerce. All the ports are filled with vessels inactive; the merchants receive no commission, nor dare they venture to give any: all the great enterprizes for which the government has established prizes, or rather encouragements, remain unexecuted. The Greenland Whale Fishery, and Commercial Expedition to China, which ought to have by this time departed, still wait the issue of the negotiation.

It is said, that in the event of a rupture, the Batavian government will equip twelve ships of the line, six frigates, and some other vessels. But this measure would have no effect under the present circumstances, as in case of a war with England, the Dutch ports would be blocked up by a superior fleet. Such an armament, besides, must be equipped with excessive difficulty, in the present critical situation of the finances.

Besides the French troops that have already arrived, four battalions of Infantry and three squadrons of hussars, are to follow them immediately. It

is certain that the head-quarters of these troops will remain at Breda, as long as the negotiations continue.

Flushing has suddenly become the theatre of the most active military movements, and, by the dispositions of the French, it is already thrown, as it were, into a state of war. But what has more surprised and alarmed the inhabitants, is the publication of a consular decree, by which the town is put in a state of siege, and subjected to the government of a French general.

By an express order from the first consul, the Louisiana expedition is definitively suspended. The French general has debarked the troops that were on board the vessels; they will proceed, with the other troops newly arrived in this republic, to different destinations, both on the frontiers and elsewhere. In several of the Dutch towns, among others, at Nimuguen and Grave, their entrance was at first opposed by the commandants of the Dutch garrisons; but after an ulterior explanation, these commandants thought fit to yield to necessity and force.

ST. DOMINGO. Dispatches received at Paris from St Domingo, to the 4th of March, states, that a detachment of 4,000 men had arrived from France, and the remainder of the reinforcements were expected daily. The army would then be able to resume offensive operations. It appears that the blacks had again shewn themselves on the plain, but were defeated with loss. The north is cleared of the insurgents; in the west the French extend to Mirebalais. The brigands are in the interior on the Mornes, between the north and the west. The black chiefs are represented to be discontented with each other, and some of them have been shot by their colleagues. The Spanish part remains untouched.

Agriculture.

HIGHLAND SOCIETY HALL.

EDINBURGH, 11th FEB. 1803.

THE Highland Society of Scotland, do hereby advertise, that they are to give the undermentioned PREMIUMS for ESSAYS and COMMUNICATIONS, bringing Barren Lands into Culture, with other Improvements in Agriculture; and also for Meliorating the Breed of Black Cattle, for the Year 1803.

ESSAYS.

CLASS FIRST.

A Gold Medal or Piece of Plate, of the value of Sixty Pounds sterling, will be given for the best and approved Essay or Communication

“ On Peat Mosses, their diversity in respect to origin, situation, and present condition, and the circumstances requiring attention in their cultivation for bearing crops, in the preparation of peat as a manure, and in winning it for fuel.”

It is expected in this essay that an account will be given of the implements, with drawings of any new ones employed in the draining and cultivation of mosses, and of the species of crops, and modes of management, adapted to mosses of different descriptions, with a statement of any facts or experiments tending further to illustrate these subjects.

CLASS SECOND.

A Gold Medal or Piece of Plate, of Fifteen Guineas value, will be given for the best and approved Essay on any of the following Subjects:

1st, “ On the introduction of Sheep Farming into the Highlands of Scotland, and particularly whether the general and indiscriminate introduction of sheep husbandry will ultimately prove beneficial to the proprietors, the farmers, and the public at large; the extent to which sheep farming may be attempted, with a prospect of advantage, on the situation and circumstances in

which it promises to answer best, and on the means by which it may be accomplished with least inconvenience and most benefit to all concerned."

It is the wish of the society, that any writer treating of this important subject should give a view of the comparative utility of cattle and sheep, in relation to the Highlands, the several departments of rural industry pursued therein; the distance of the English markets, and such other circumstances as appear to be connected with the subject.

2d, "How far do frosts and considerable degrees of cold retard, or totally prevent the farther filling and ripening of corn, particularly oats? And in what states of vegetation on approaching ripeness are the worst effects to be apprehended? What are the stages of growth and ripeness? And what are the peculiar stages of the weather, and other circumstances, in which corn, particularly oats, are rendered unfit for feed? And to what degree, and by what appearances, can the point of distinction between the good and the bad feed be readily ascertained."

N.B. The society is very desirous of receiving the most accurate answer to these queries respecting corn, and it is therefore expected, that when the author draws inferences, they are to be supported by practical facts, or correct and well authenticated experiments, on such a scale as may warrant a general conclusion.

CLASS THIRD.

1st, A Gold Medal or Piece of Plate, of Forty Guineas value, will be given to the Person who shall, on or before the 20th of November 1804, lodge with the Deputy Secretary of the Society, the best and approved Essay or Communication

"On the Accidents and Disorders to which Sheep are liable, and particularly on those destructive diseases to which, in many situations and seasons, they are incident, called in different parts of Scotland, the one by the name of braxy or braxit, or the sickness, and the other by that of rot or the poke, &c. on the variety or different kinds of these disorders, the causes inducing them, and the means of preventing or removing them in different cases."

As there is reason to apprehend, that disorders of different sorts are included under each of these two general names, the society wish that, so far as may be useful, a description shall be given of the appearances which occur on opening the body of animals afflicted with any of these distempers.

2d, As also, a Gold Medal or Piece of Plate, of Twenty Guineas value, will be given to the person who shall, on or before the 20th of November 1805, lodge with the Deputy Secretary the best and approved Essay or Communication

"Concerning such of our Native Plants, particularly the Grasses, as are most deserving of culture, with the view of affording herbage for pasture or hay, distinguishing the climate and soil respectively adapted for them, and the time and manner of collecting and sowing their seeds, or of otherwise propagating them; taking notice of the different species which are particularly preferred by cattle, horses, and sheep."

The premium for this essay is to be given under the following conditions:—To prevent confusion and mistake, the number of the species, of which an account is to be given, must not be under five nor above fifteen; and fresh or dried specimens of the several plants, with a small portion of the feed of each, are to be delivered along with the essay to the secretary.

CLASS FOURTH.

A. Gold Medal or Piece of Plate, of Twenty-five Guineas value, will be given for the best and approved Essay or Communication on the following Subject.

And a Gold Medal or Piece of Plate, of Ten Guineas value, for the second best and approved on the same Subject.

1st, "The natural history of Herrings, particularly marking their seasons and mode of spawning, and the places they prefer for that purpose, their route

from those places while in a state of fry to maturity, the progress of their growth and nourishment during the time they usually appear on the different parts of the coasts and seas of Great Britain and Ireland, the varieties of them both as to size and quality, when they appear, and the changes that occur in these respects during the course of the same season, and whether those changes appear to be uniform or casual, whether the rapidity of the tides, the depth of the water, or age of the fish, may have any effect in inducing or increasing these varieties, or whether they may be owing to their being different and distinct species of herrings. Also the causes, so far as can be discovered, why they prefer one part of the coast to another, and sometimes desert their usual haunts. Whether certain, and what modes, of fishing, have a tendency to disturb the fish, and render the fishing less productive."

CLASS FIFTH.

A Gold Medal or Piece of Plate, of Ten Guineas value, will be given for the best and approved Essay or Communication, on any of the following Subjects, viz.

1st, " Upon the cause and origin of Mofs or Fog, which is so prevalent in the pasture grounds in Scotland; the best method to prevent and eradicate it, without ploughing up the ground for cropping."

It is expected that any writer treating of this subject will give an account so far as falls within his knowledge, of the methods already practised for eradicating the species of mofs or fog, referred to in the question, with the success attending them.

2d, " What is the best method of raising and training hedges on poor or exposed lands, for the purpose of inclosures, and what kinds of plants succeed best in such soils and situations."

3d, To the person in Scotland who shall on or before the 1st of December 1803, transmit to the depute secretary of this Society, a satisfactory statement in writing of his having within the six years preceding that period, successfully improved and brought into tillage the greatest proportion of lands not hitherto in culture, and not less than twenty Scots acres."

The statement to contain an account of the mode of cultivation, the expence attending it, the nature, quality, and value of the crops, and the situation of the ground previous to the improvement.

RULES OF COMPETITION.

In all these essays or communications it is expected that when facts not generally known are stated, they will be authenticated by proper references; and also, that the essays shall be written in a fair and legible hand. The Society would likewise recommend, that one page of the folio may be left blank, for any observations that may occur to members of the Society on perusal.

Each essay or communication required to be given in, in the year 1803, must be lodged with the depute secretary of this Society, on or before the 10th November next, except as to the description of the improvement of barren land, which is to be lodged by the 1st of December next. The periods fixed for lodging the essays on the diseases of sheep, is 20th November 1804, and on our native plants or grasses, 20th November 1805, as above stated. Each essay must be inscribed with some distinguishing mark or device.

A sealed note containing the author's name, and inscribed on the back with the mark, motto, or device, of his essay, must be lodged at the same time with the essay, and when the motto or mark on the essay or sealed note is neglected by the author, such essay will not be allowed to compete for any premium.

N. B. None of the sealed notes, except those which bear the distinguishing mark, motto, or device of a preferred essay, will be opened, and the Society are to be at liberty to publish the essays, for which premiums shall be adjudged, or such parts of them as they shall think proper to be communicated to the public, and such essays as are not found entitled to any premium will

be returned to the author when called for. Further, upon application from the gainer of any of these premiums, the society in such cases as they may see proper, will allow them to be paid in money.

INVENTION OF A REAPING MACHINE.

To the person who shall invent the best and most approved machine for reaping, which upon trial shall be found, to the satisfaction of the society, useful in saving labour and expence, simplicity of construction being deemed an essential part of its merits, a Gold Medal or Piece of Plate of Ten Guinea's value, or that sum in money.

N. B. A specimen of the machine to be lodged with the depute secretary on or before the 1st December next. By order of the directors,

LEWIS GORDON, Dep. Sec.

Sussex Agricultural Society.

At a general meeting of the subscribers of the Sussex Agricultural Society, to arrange the prizes and premiums for the present year, held at the Star Inn, Lewes, March 16, 1803, the following resolutions were agreed to:

PREMIUMS FOR SHEEP SHEERERS.

1. That Ten Pounds be given to three sheep shearers who shall shear thirty sheep each in one day, (to be taken out of the same flock) in the best and most workman like manner, viz. shearing the clofset, and clipping off the greatest quantity of wool, and doing the least injury to the sheep, by cutting them or otherwise, viz.

To the best shearer	Five Pounds.
To the second best	Three Pounds.
To the third best	Two Pounds.

To be determined by three judges to be appointed for that purpose. A committee of all the subscribers will meet on the third Saturday in May next, at the Star Inn, Lewes, at four o'clock in the afternoon, to appoint the judge to choose the flock, and to fix the day for the shearing, of which notice will be given in the Lewes Journal.

PRIZES FOR CATTLE AND SHEEP.

2. That Ten Pounds be given to the owner of the best bull, two years old.
3. That Ten Pounds be given to the owner of the best bull, three years old.
4. That Ten Pounds be given to the owner of the best bull, four years old, or upwards. No bull having gained two of the above prizes can be shewn for a third.

A piece of plate, value Ten Pounds, was adjudged at the shew of cattle in 1801, to Mr. Alfrey, of Friston, the owner of the best bull produced in the field, to be kept till such piece of plate shall be challenged by the owner of any other bull. The challenge to be given on the day of the shew of cattle, and to be determined on the next ensuing day of shew. The challenger to stake five pounds against the piece of plate, or to pay half forfeit; on giving one months notice, that he does not mean to shew, to the holder of the piece of plate. This piece of plate was not challanged on the last day of shew.

5. That Five Pounds be given to the owner of the best heifer, two years old.

6. That Five Pounds be given to the owner of the best heifer, three years old, that shall have produced a living calf, between the 1st of January and the 1st of April preceding, and shall be in milk at the time of shew.

7. That Five Pounds be given to the owner of the best cow, four years old or upwards, under the same conditions as in the last article.

8. That Five Pounds be given to the owner of the best yoke of working oxen, of the same age, from four to six years old.

No bull, heifer, cow, or ox, will be permitted to be shewn for the prizes, but such as shall be led to the place of shew by a strong rope or chain, and shall be afterwards sufficiently secured, so as to prevent the possibility of breaking loose.

9. That Eight Pounds be given to the owner of the best South Down ram, one year old last lambing time.

10. That Eight Pounds be given to the owner of the best South Down ram, two years old last lambing time.

11. That Eight Pounds be given to the owner of the best South Down ram, three years old last lambing time.

12. That Eight Pounds be given to the owner of the best South Down ram, two years old last lambing time, which shall have worked the year before in the flock, not less than one month in the Autumn, and shall have returned to the flock on or before the 5th day of April, and shall have continued with the flock till the 1st day of July, upon the Down and Arable land.

13. That Eight Pounds be given to the owner of the best South Down ram, three years old last lambing time, under the same conditions as in the last article.

The Fleeces of all the Rams shewn for Prizes must be produced.

14. That Five Pounds be given to the owner of the best pen of twelve South Down ewes, viz. four of one year old, four of two years old, and four of three years old.

15. That Four Pounds be given to the owner of the second best pen of twelve South Down ewes, of the same description as the former.

16. That Three Pounds be given to the owner of the third best ditto.

17. That Two Pounds be given to the owner of the fourth best ditto.

18. That One Pound be given to the owner of the fifth best ditto.

The two and three year old ewes must have produced and reared a lamb, which had not been weaned before the 24th day of June, preceding the day of show; and the ewes must have been kept with the flock sheep, till within three days of the shew.

19. That Two Pounds will be given to the owner of the best South Down ram fleece, in weight and quality.

20. That One Pound be given to the owner of the second best.

No Fleeces to be permitted to be shewn for the prizes for Fleeces but such as are the produce of the rams shewn for the South Down ram prizes. The Candidates to send their Fleeces marked in the same manner as the rams, to Mr. Whitfield's Wool Warehouse, three days before the day of shew with their names affixed.

21. That each Candidate shall produce a certificate of the age, as near as possible, of his stock shewn, the pedigree where it can be ascertained, with the name of the breeder, and an account of the manner in which the stock had been kept for the last four months preceding the day of shew; and also conform to every other particular required by the society in the foregoing resolutions.

22. That each Candidate may shew cattle or sheep for all the prizes, but shall be entitled to no more than one prize for each sort of stock;—i. e. for bulls, heifers, cows, oxen, rams, not kept with the flocks,—rams kept with the flocks, and ewes.

23. That no prize be awarded, unless the animal or animals shewn shall be deemed by the judges to possess sufficient merit to be entitled to it.

24. That three judges for the cattle, and three for the sheep, be appointed by the committee, who will meet on the 26th of July next, at the Star Inn, Lewes, at one o'clock; and that the committee do consist of all the Subscribers; seven of whom shall form such committee, if more shall not attend; but no person shall act as judge, or vote in the committee, on any question in which he shall be interested.

25. That the cattle and sheep be brought into the field, before eleven o'clock; such as come after that hour, shall not be entitled to any prizes.

26. That three stewards be appointed for the management of the business on the day of the shew of cattle; and that John Fuller, Esq. M. P. Mr.

Saxby and Mr. Knight, be requested to undertake that office for the present year.

That the judges be requested to assign their reasons for their decisions, in the shapes and wool of the animals to which they adjudge the prizes.

That the dinner be on table at three o'clock precisely; and that at five o'clock the stewards shall adjourn to the field, where the report of the judges shall be declared.

* * The shew of cattle will take place between Brighton and Lewes races, of which notice will be given in the Lewes Journal; and the Candidates for the several prizes for stock must give notice in writing, of their intention of becoming so, to Mr. Whitfeld, of Lewes, the Treasurer, on or before the 23d of July next.

PREMIUMS FOR THE INDUSTRIOUS AND DESERVING POOR.

28. That Fifteen Pounds be given to five labourers, who shall have brought up and supported to the age of two years, the greatest number of children (within the last fifteen years) in habits of industry, with the least proportionate relief from the parish, viz.

To the most deserving	Five Pounds.
2d,	Four Pounds.
3d,	Three Pounds.
4th,	Two Pounds.
5th,	One Pound.

Certificates to be signed by two or more of the principal inhabitants of the parish or parishes where the Claimant has resided during the bringing up of his family; and if any Claimants are possessed of property, such property, with the manner in which they obtained it, shall be stated in the certificate.

29. That Ten Pounds be given to four Wives or Widows of labourers who shall have done the most work in husbandry, between the 2d day of October, 1802, and the 2d day of October, 1803. The number of days, and the different kinds of work in which the women shall have been employed, with the number and ages of their children, should they have any, (which will be taken into consideration) to be stated in the certificates from their employers, viz.

To the most industrious	Four Pounds.
2d,	Three Pounds.
3d,	Two Pounds.
4th,	One Pound.

30. That Five Pounds be given to two household men servants employed in husbandry, under the age of 25 years, who shall have received wages during the greatest number of years (not less than five) in the same service, and shall produce satisfactory certificates from their masters of their continued good behaviour, viz.

To the First	Three Pounds.
To the Second	Two Pounds.

31. That Five Pounds be given to two household men servants employed in husbandry, above the age of 25 years, who shall have lived the greatest number of years, (not less than seven) in the same service, and shall produce satisfactory certificates from their masters, of their continued good behaviour, viz.

To the First	Three Pounds.
To the Second	Two Pounds.

32. That Ten Pounds be given to three labourers, who shall, with the assistance of their wives and children, under ten years of age, in working by task, or otherwise, during the next harvest, earn the most money, not less (than six pounds) in proportion to the prices at which they shall have taken their work. Certificates to be signed by their employers, viz.

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To the First,	Five Pounds.
To the Second,	Three Pounds.
To the Third,	Two Pounds.

33. That Five Pounds be given to two Women Servants in every kind of service, under the age of 25 years, who shall have received wages during the greatest number of years, (not less than five) in the same service, and shall produce satisfactory certificates from their masters or mistresses, of their continued good behaviour, viz.

To the First,	Three Pounds.
To the Second,	Two Pounds.

34. That Ten Pounds be given to four Labourers in husbandry, having been married, who shall have lived the greatest number of years (not less than seven) in the same services, and who shall bring satisfactory certificates from their employer of their continued good behaviour, viz.

To the First,	Four Pounds.
To the Second	Three Pounds.
To the Third,	Two Pounds.
To the Fourth,	One Pound.

No person who has received any premium from the society for bringing up a family with the least proportionate relief from the parish, or for long continuance in one service, will be entitled to any premium on the same ground.

It is requested that each Claimant will observe, that every particular required by the society, in the foregoing resolutions, must be expressed in the certificate.—Many inconveniences having arisen from certificates being incomplete, the Society have ordered some printed forms to be prepared, which may be had at the Lewes Bank.

The day for distributing the premiums to the industrious poor, will be fixed on the day of the shew of cattle.

* Subscriptions are received at the Lewes Bank, where those gentlemen who have neglected to do it, are requested to pay in their subscriptions for the former year.

Whitby Strand and Pickering Lyth Agricultural Society.

Sir R. B. Johnstone, Bart. *President.*

John Gray } *Vice-Presidents.*
Richard Smailes }

AT a Meeting of the Committee appointed by this Society, the following Premiums are ordered for cattle, sheep, &c. bred within the said districts, to be shewn at Hackness in the said North Riding, on Whitson Tuesday next, at 11 o'clock in the forenoon:

For the best two years old Bull	3 3
The second best	2 2
For the best year-old Bull	3 3
The second best	2 2
For the best two-years old Heifer	3 3
The second best	2 2
For the best pair of Draught Oxen not more than four years old	3 3
For the best pair of two years old Steers	2 2
For the best one-year old Tup	5 5
The second best	3 3
The third best	2 2
For the best Gimmer Hogs, not less than five in number, or not less than one-tenth part of the Candidate's whole stock	3 3
The second best	2 2
For the best Boar	2 4
The second best	2 4

Also ordered, that the following premiums be given without the restriction of being bred in the said districts:

For the best Bull 3 3

For the best Tup, not more than two shear 3 3

For the best Cow with Calf, or that has had a Calf within twelve months, and has been one year in the said districts, prior to the day of shew 3 3

All the above stock, except the Oxen and Steers, are to remain and be used within the said districts twelve months, or the premiums to be forfeited.

The stock are to be bona fide the property of the Candidate, and Certificates of their ages will be required.

The Tups and Gimmer Hogs are to be shewn with their wool on, but to be shorn, if the Judges think it necessary.

If only one Bull, one Tup, &c. be shewn, the Judges shall give such premiums as they think proper. The Judges will be chosen on the day of shew.

No person will be allowed to shew for any of the above premiums without becoming a Subscriber of, at least, Half-a-Guinea, and unless he occupies Lands within the said districts.

It was also ordered, that a premium of five-guineas be given for the greatest number of Acres (not less than ten) of waste land brought into cultivation in the said districts, within the last three years. The Candidates for this premium must give notices in writing to the Secretary, on or before the first day of May next. And Certificates will be required of the original state of the land, attested by some reputable person or persons in the neighbourhood.

The Committee reserve to themselves the right of withholding any premium whatsoever, until they are convinced that the Claimant is, in every respect, fairly and fully entitled to it: and if it be found that he has attempted to impose upon the Committee, by false and unfounded claims, or has not abided by the restrictions required, he shall not only forfeit such premium, but shall be disqualified for receiving any future premium, and shall be no longer considered a member of the Society.

It was also ordered, that a premium of two-guineas be given to the labourer who has maintained the greatest number of legitimate children (not less than six) within the said districts, without any, or with the smallest assistance from the parish. A Certificate will in this case be required of the number of the legitimate children and their ages, and whether the labourer has had any, or what, assistance from the parish, signed by the Minister, Churchwardens, and Overseers of the Poor.

N. B. A fair for all kinds of Cattle will be held at Hacknesh on the same day, free from all Tolls.

THOMAS HUTCHINSON;

Secretary.

Hacknesh, 21st Feb. 1803.

Agricultural Society for the County of Durham.

At a meeting of the Society held at Darlington, on the 20th of December, 1802, it was resolved to offer the following Rewards for the ensuing Year:

No. 1. TO the Farmer, whose farm (not less than 150 Acres) shall be deemed to be in the most skilful mode of cultivation, and best condition, five-guineas.

2. To the Farmer, who has, at his own expense, laid down to grass a piece of ground, (not less than ten Acres) being part of his farm, of not less than 150 Acres; and which, at the end of three Years, shall appear to have been most skilfully laid down, and used as Meadow or Pasture, during such three Years—five-guineas.

3. For the greatest quantity, and best in quality, of Rye-grass Seeds, produced from two Acres of ground—three-guineas.

The Candidates for any of the above three Rewards, are desired to send their claims to the Secretary on or before the 1st Day of July next; and their several farms, grounds, and crops will in due time be viewed by a Committee of the Society, appointed for that purpose, who will take fully into their consideration the nature of the soil, and the situation of the ground of each Candidate, and form their estimates accordingly.—The Candidates for No. 3, must also transmit to the Secretary a Certificate from two respectable persons in the Neighbourhood, certifying the quantity of ground, and the seed growing thereon.—The Rewards will be adjudged and paid at the meeting of the Society, to be holden at Durham in December next.

4. To the Cottager usually employed in Husbandry, by whom the greatest number of legitimate children (not less than six) have been maintained, educated, and placed in service, without assistance from his parish—four-guineas.

5. To the Cottager usually employed in like manner, who shall have maintained, educated, and placed in service, the next greatest number of legitimate children, under the same restrictions—two-guineas.

The case of such Claimant to be certified by the minister, and a major part of the Churchwardens and Overseers of the poor of the parish or place where such Cottager resides, and delivered to the Secretary on or before the first day of July next; and the Society earnestly requests that no minister or Parish Officer will grant any such Certificate, unless the facts contained in it are within their own personal knowledge, or ascertained to them by parochial records or other indisputable testimony.—The rewards will be adjudged and paid at the meeting of the Society, to be holden at Darlington in September next.

6. For the best Stallion for getting harness or draught horses; to be kept in the County of Durham as a Stallion, at one-guinea per Mare, for one season afterwards, and to attend Durham Market, in the usual manner—three-guineas.

7. To the best Stallion for getting Hunters or Road horses, with the same injunctions as last above mentioned in No. 6—three-guineas.

8. For the best Bull (not less than two years old) to be kept in the County of Durham one year afterwards—five-guineas.

The Horses and Bulls must be shewn at Darlington upon Easter Monday next, when the several Rewards will be adjudged and paid; and the successful Candidates must give such Security to the Society, at their meeting holden upon that day, for the performance of the different conditions annexed, as they may deem satisfactory.

9. To the best Tup, (whether aged or shearing), to be kept in the County of Durham for one Year afterwards—five-guineas.

10. For the best Cow or Heifer (in Milk or with Calf), bred in Darlington or Stockton Wards, to be kept in the County of Durham, for two Years afterwards, as a breeding cow—five-guineas.

The Tups, Cows, and Heifers, must be shewn at the meeting of the Society at Darlington, in September next, when the Rewards will be adjudged and paid,—the successful Candidates giving satisfactory Security for the Performance of Conditions.

11. For the best Cow or Heifer (in Milk or with Calf), bred in Chester or Easington Wards, to be kept in the County of Durham, for two Years afterwards, as a breeding Cow—five guineas.

These Cows or Heifers, must be shewn at the meetings of the Society at Durham, in December next, when the Reward will be adjudged and paid, Security being given by the successful Candidate.

REWARDS FOR FAT SHEEP AND CATTLE.

12. For the best Penn of five fat Wethers, under two years old, and which have not been fed with any other than green food—ten-guineas.

13. For the best Penn of five fat Wethers, under two years old, which

shall not weigh more than 24 pounds per quarter, and have not been fed with any other than green food—ten-guineas.

Certificates, respecting the feeding of the Sheep, will be required at the time of shewing.

14. For the best fat Ox, certified to be under four years old at the time of shewing—ten-guineas.

15. For the best fat Ox, certified to be under four years old at the time of shewing, whose Carcase, when killed, shall not weigh more than 64 stone ten guineas.

The Candidates for the four last-mentioned Rewards must shew their Sheep, or Oxen, at the meeting of the Society to be holden at Mr. Hoults's, in Durham, on Friday the 16th of December next, at ten o'clock in the forenoon. And as no perfect judgment can be formed of the real merits of those animals, by merely examining them when alive, they must be slaughtered upon the day they are shewn, and the Carcases examined by the Society the Day following,—when the several Rewards will be adjudged and paid. The Oxen requiring a greater length of time between their being killed and their Carcases being made fit for examination, will be shewn first.

The Society trust that no person will presume to shew any Stallion, Bull, Tap, Cow, or Heifer, unless they are in every respect such as the public will be benefited in breeding from. The improvement of the different breeds is the grand object of the Society, and they beg it to be understood, that they shall deem themselves justified in withholding the Rewards which they have offered, when any horse, &c. *although the best of the Class*, shall not, in their judgment, possess a sufficient degree of excellence to promote that desirable end.

Resolved unanimously, That none of the members of this Society will, in future, hire any Servants, without a Certificate of good behaviour from the last place of Service.

The ploughing match by the Greenock and Innerkip Farmer and Agricultural Society, took place on Thursday, on the land of Cartburn, in the presence of the Judges, and upwards of 1000 spectators. Eleven ploughs were on the ground by 11 o'clock, and all of them did their work in a very masterly stile; but, after due deliberation, the Judges awarded the prizes in the following manner, viz. The first prize to William Lindley, farmer in Kilback, parish of Erskine, for lot 7th.—The second, to Robert Craig, servant to Mrs. Johnston of Bishopton Inn, for lot 9th.—The third, to John Lang, son to William Lang, farmer in Ingleston, parish of Erskine, for lot 10th.—And the fourth, to John Algie, servant to William Warden, farmer in Finnart, old parish of Greenock, being for lot 13th. When the business was over, the Judges and a number of the members dined together at the Buck's Head Inn. The ploughmen were treated with a dinner at the same Inn, and spent the evening with the greatest harmony and conviviality.

On Thursday se'nnight, a Ploughing match took place by appointment of the Lesmahagow Farmers Club, on the farm of Drafan, and although it was the first trial of the kind, eight competitors belonging to the parish of Lesmahagow came forward, all of whom gave the greatest satisfaction to the numerous spectators who were present, by the very masterly manner in which they ploughed their several lots. The Judges, after the most careful examination of the work, adjudged the prizes in the following manner. The first, being two-guineas, to Hugh Gaw, son to James Gaw, farmer in Tower—The second, being one-guinea and a half, to William King, ploughman to Mr. Cunningham in Drafan—The third, being one-guinea, to John Smith, ploughman to William Clark, Esq. of Kerse—The fourth, being half-a-guinea, to Robert Weir, son to William Weir, farmer in Raw Hill; and the other competitors were allowed five shillings each.

The annual ploughing match appointed by the Carrick Farmers Society, took place on Wednesday the 9th instant in a field in the farm of St. Murray,

near Maybole, belonging to Mr. James M'Jannet. Twenty-six competitors appeared, to whom the judges prescribed a rule as to the depth and breadth of the furrows. They then retired till the work was all finished; and, after minute inspection, they adjudged the first prize to David Edgar, servant to David Kennedy, Esq. of Kirkmichael.

The second, to James Hannah, servant to Mr. Ebenezer Donaldson in Dalduff, parish of Maybole.

The third, to Peter M'Intyre, servant to Mr. Alexander M'Hutcheon in Woodstone, parish of Kirkmichael.

The fourth, to John Dick, servant to Mr. John M'Clymont in Barnton, parish of Kirkmichael.

The whole work was remarkably well executed considering the nature of the land and the severity of the frost, and gave universal satisfaction to the judges, and numerous spectators. Every friend to his country must feel satisfaction in the rapid progress of agricultural skill in that part of the country, to which the Carrick Farmers Society, above 80 in number, consisting of many of the principal proprietors and respectable tenantry of that district, has not a little contributed.

On Monday the 7th of March last, the Spring Ploughing Match, under the patronage of the Mearnsire Agricultural Society, took place at Fetteresso. Seventeen ploughs started in a field of old ley, having drawn lots for the places which were marked on the poles which divided the ground. The ploughs started at twelve o'clock, and finished by half past four. The judges then went over the field, and after accurately examining the whole, adjudged the first prize to John Stephen, servant to William Murray in Grains of Fetteresso; the second, to John Steel; the 3d, to William Spalding, both servants to Mr. Barclay of Dry; and the fourth, to John Shand, servant to Mr. Duff of Fetteresso. The judges expressed great satisfaction with the whole performance, and had some difficulty in determining to whom the two last prizes should belong, many being nearly equal. It was with great pleasure the gentlemen of the Society present, observed a considerable degree of improvement in the ploughing since the last spring match. A numerous company of gentlemen were afterwards elegantly entertained at Mr. Duff's hospitable board, where a number of loyal and patriotic toasts were drank. An excellent dinner was likewise ordered by Mr. Duff for all the ploughmen. Owing to the severe frost, which had set in for some days previous, a number of ploughmen from a distance did not attend, supposing there could be no ploughing, although there was no interruption at the Herefordshire Agricultural meeting, on Monday last, the following were declared the successful candidates for the Society's premiums; E. Jones, Esq. Fawley, for the best bull of all ages; T. A. Knight, Esq. for the best three years old; Mr. Williams, of Thinghill, for the second best ditto; J. G. Cotterell, Esq. for the best yearling; and Mr. Jones, of Bremton, for the second best ditto. The President, Mr. Knight, informed the meeting, that although the late decision in London, gave a preference to the Devonshire oxen exhibited there; on slaughtering them, the Herefordshire were found to have three inches more of solid meat on the ribs, than the Devonshire, to whom the premium had been awarded.

On Wednesday April 1st was held the Anniversary meeting of the York Agricultural Society, when the following premiums were adjudged, viz.

To Mr. Shaw of Malton, for the best Stallion for getting Hunters and Saddle Horses, 5l. 5s.

To Mr. West of Eddlethorp, for his old Stallion, as the best for getting Coach Horses, 5l. 5s.

To Mr. John Dawson of Whighill, for the best Stallion for getting Cart Horses, 5l. 5s.

G. Crompton, Esq. of Nunmonckton; Mr. Milner, Bishopthorpe; Mr.

W. Laycock, Appleton; Mr. C. Hall, Ellerton; Mr. G. Hardwicke, Burton House; and Mr. W. Hodgton, Stamford Bridge, were the Judges.

The following Gentlemen were appointed Officers of the Society for the ensuing year:

Sir M. M. Sykes, Bart. *President.*

Hall Plumber, Esq. } *Vice-Presidents.*
H. J. Baines, Esq. }

Thomas Hartley, Esq. *Treasurer.*

John Tuke, *Secretary.*

On Wednesday April 1st our annual Palmsun Show of Stallions was held: besides those which received the premiums from the York Agricultural Society, several very capital horses were shown, amongst whom were Duncan, Cardinal, and a young horse belonging to Mr. West, jun. of Eddlethorp, all indeed excellent of their kind. On Thursday there was a great show both of fat and lean cattle. Fat sold at high prices, but lean rather lowered since our last report. Sheep also fetched great prices.

At Blandford fair, on Monday, the most extravagant prices were asked for every article there. Household cheese sold for two-guineas a hundred. Pigs were very numerous, but extravagantly dear.

At Rofs fair, on Monday, there was a considerable show of lean cattle, which experienced rather a dull sale. Good horses sold well. The prices of pigs and sheep were nearly the same as at the late neighbouring fairs. There was a large quantity of cheese, of which best making sold from 53s. to 58s. two meal, from 43s. to 46s. per cwt.

At Tewkesbury fair, on Monday last, there was a fine show of cattle, which sold at rather advanced prices. A cow, bred and fed by Mr. Clifton, of Ashchurch, and a Herefordshire heifer, were shown to amateurs and the curious. The cow was eminently distinguished for her excessive fatness. She is descended from the late Mr. Fowler's stock, and is supposed to exceed, in point of shape and fatness, any one ever produced in England. She was exhibited to nearly one thousand persons. The heifer was remarkable for its weight, which was upwards of two thousand eight hundred pounds.

The prices of leather at Liverpool fair, on the 15th instant were, light ordinary hides, 20½d. a 21d. per. Middling ditto 21½d. a 22d. Heavy ditto 23d. to 24d. Dressing ditto 21½d. a 22½. Horse ditto 20d. a 23d. Calf Skins, English, 40lbs. to 60lbs. per dozen, 2s. 5d. a 2s. 7d.; 60lbs. per dozen, 2s. 4d. a 2s. 6d. Irish, 1s. 8d. a 2s. 1d.

At Saffron Walden fair, on Saturday se'ennight, there was a great show of horses, which had a quick sale, and fetched great prices. Good drafts sold from 30l. to 50l.; hunters 30l. to 70l.; draft three years old colts, from 20l. to 35l. each. The best horses were mostly brought up on the Friday, and by ten o'clock on the Saturday morning there were few left in the fair, and those very ordinary ones. Cow kind rather cheaper.

The prices of grain, on Thursday, at Devizes market, were, wheat, 54s. to 60s. per quarter. Barley, 22s. to 27s. Beans 32s. to 38s. Oats, 19s. to 22s.

The average price of Sugar, for the week ending 23d March, is 39s. 7½d. per cwt. exclusive of the duty.

At Morpeth market on Wednesday last, both beasts and sheep advanced in price.

At Durham fair, last week, horses met with a very brisk sale and brought remarkably high prices; the sale for mares was very dull, and the prices rather reduced. Cattle did not sell so briskly as of late, though the prices in general were nearly the same.

Accounts from various countries, particularly those to the Eastward, state that the wheats have, in general, been severely injured by the frost; and that a similar injury has been sustained by the corn ploughed in, as

well as by that sown by the drill, harrowed in on clover-leys, or in the broad cast way. Intelligence, however, from other quarters is of a far more favourable nature.

The succession of dry weather has been highly favourable to the lambing of the South Down flocks; and indeed for all the purposes of husbandry. The lambs which have hitherto been yeaned are remarkably strong and very healthy, but the twins have not been so numerous as in some former seasons.

The Wool of England, in the reign of Edward III. is generally supposed not to have exceeded in quantity 150,000 sacks, of 360 pounds weight each, which is equal to 225,000 packs, of 240 pounds, according to the packages of these days. In later times computation have greatly varied. According to Davenant, there was in England alone, at the commencement of the last century, about 400,000 packs, worth 5*l.* each; which, when manufactured, produced eight millions in value. Trowel, in his plan for preventing the clandestine running of Wool, printed anno 1738, supposes 800,000 in England and Ireland, and about 925,000 packs in the three kingdoms. Others, about the same time, computed the number of packs at about 1,274,000. Mr. Arthur Young calculates the number of Sheep in England alone at nearly 29,000,000, and the value of the whole growth and labour of the Wool of Great Britain and Ireland at 17,695,529*l.* furnishing employment to about a million and a half of people. We shall suppose, however, that there are only 28,800,000 sheep in the whole island of Great Britain, producing at an average 5*lb.* weight of Wool each, or 144,000,000 pounds in all, equal to 600,000 packs, and worth, at the rate of 8*l.* per pack, 4,800,000*l.* If the value of the raw material is quadrupled by the labour that is bestowed on it, the growth and labour will amount to 19,200,000*l.* to which, if there is added the value of the Wool imported from Spain, and the labour employed on it, it will make a total of about Twenty Millions.

Farmers who have access to peat mosses will find a very great addition of manure, not less valuable than town dung, by attending to the following directions:—take in the proportion of four cart-loads of moss peat, or rubbish of peat, and put over it one cart load of good farm dung, for every four cart-loads of peat moss. The mixture will heat in about 20 days, more or less according to the state of the weather. If the mixture grow too hot, it must be turned over, and it will be too hot when it exceeds 80 degrees of Fahrenheit's thermometer. This is one of the most important discoveries ever made for the improvement of Scotland, which abounds so much with peat mosses; mosses run out for fuel, will become very valuable for manure.

Swedish Turnips.—An Aug's Farmer gives the following account of his experience this year, of the use of the Swedish turnip. He has given them to his work horses. They were cut small at first, and mixed with beer, chaff and corn. The horses in ten days have grown fond of them, and devour them greedily, and have improved in strength and appearance exceedingly on this food. Great care must be taken to wash them very clean. The horses now eat them easily uncut. Swine, which care little for any part of the common turnip, but the shaws, eat those and fatten on them. The sheep eat them whole. His young horses do the same, and thrive on them. They make part of his cows food, boiled, and give the milk no taste of turnip. The calves, a month or six weeks old, are very fond of them boiled.

From a number of experiments and observations lately made on the effects of elder in preserving of plants from insects and flies, it appears to be useful—1. For preventing cabbage and cauliflower plants from being devoured and damaged by caterpillars.—2. For preventing blights, and their effects on fruit trees.—3. For preserving corn from yellow flies and other insects.—4. For securing turnips from the ravage of flies. The dwarf elder appears to exhale a much more foetid smell than the common elder, and therefore should be preferred.

BANKRUPTCIES AND DIVIDENDS,

Announced between the 20th of March and the 20th of April, 1863.

BANKRUPTCIES.

The Solicitors' Names are between Parentheses.

ARNOLD, Thomas, Canterbury, cheesemonger. (Mar-
vin, Vintner's hall
verson, Henry and Samuel, Manchester, corn-dealers.
(Milne and Farry, Temple
Anderson, Robert, Guildford street, and Old Pay-office,
merchant and infirmary. (Walton, Fidler's hall
Locks, Benjamin, late of Charlotte street, Blackfriars
road, now of Red Lion fire. (Holborn, coal-merchant.
Cokayne and Taylor, Lyon's inn
Lebowe Francis, Ruffa row, Milk street, London, and late
of Nottingham, hofier. (Plaid, Patton garden
Bishop, Thomas, Little Eastcheap, carpenter. (Radcliffe,
Warwick court, Holborn
Barkly, Jacob Nathan, Tower royal, Budge row, mer-
chant. (Finn J. N. Barkly and Co.) Willet and Annel-
ley, Finsbury square
Brook, Edward, Wakefield, scrivener. (Allen and Exley,
Furnival's inn
Bourgeois, Edouard, Billiter square, merchant. (Laugham,
Baker's building
Bell, John, Norwich, liquor merchant. (March, Norwich
Bateman, John, Whitechapel, hardwareman. (Kibble-
white, Gray's inn
Billet, George, Southwark, linen-draper. (Doble and
Thomas, Great Court
Brown, William, Lincoln, father. Kinderley, Long and
Ince, Symond's inn
Beaumont, William, Shrewsbury, draper. (Batten and
Trent, Temple
Calwell, William, Maidstone, upholsterer. (Allen, Lon-
don street
Calvert, Nathaniel, Lancaster, merchant, Partner with
Francis Simpson, of St. Christopher's (Bleakdale and
Alexander, New inn
Coker, John, Barnes, dealer. (Edwards, Castle street,
Holborn
Dunne, Charles, Durdent street, Marybone, surgeon and
apothecary. (Mayhew, Marlborough street, Golden square
Dow, Thomas and Anthony, Liverpool, merchants. (Black-
lock, Temple
Davalon, John Baptist, partner with John Mofenan, Lau-
rence-pountney lane, merchant. (Willett and Annelley,
Finsbury square
Deane, Thomas, Wood street, victualler. (Sarell, Berke-
ley square
Dawson, William, Jun, Liverpool, merchant. (Shawes,
Bridge street, Blackfriars
Early, Richard, Chesham, coal-merchant. (Allen,
London street
Greenwood, Samuel, Newman street, coachmaker. (Kib-
blewhite, Gray's inn place
Glover, John, Great-lever-works, oil of vitriol manufac-
turer and merchant. (Street, Philpot lane
Green, Joseph, Liverpool, woollen-draper. (Hindie, Bart-
lett's buildings
George, Francis, Panterage, coal-merchant. (Tourle,
Palmer and Fugh, Gray's inn
Hacker, William, Precinct of the place of the Archbi-
shop of Canterbury, carpenter and builder. (Barnes,
Clifford's inn
Hance, William, Tooley street, merchant, and hat manu-
facturer. (Lee, Three-crown court
Hutchon, Thomas Coleman street, merchant. (Smedley,
Aldersgate street
Halsed, Robert, Worthorn, calico printer. (Johnson, Man-
chester
Huller, James, Weston-colville, farmer. (Sanderford, Falf-
grave place
Keymer, Francis, Covent garden, surgeon and apothecary.
(Hannam, Piazza chambers, Covent garden
Lomnitz, Joseph Benjamin, and Wolf Rifon, Fenchurch
street, merchants. (Willett and Annelley, Finsbury
square
Martorelli, Francis, Fleet street, merchant. (Willett and
Annelley, Finsbury square
Moss, Michael Emanuel, Old Bethlem, merchant. (John-
son, Ely place
Mitchell, Hugh, Liverpool, builder. (Battye, Chancery
lane
McConnell, Edward, Liverpool, linen-merchant. (Wilson
and Road, Unbol street, Southwark
Myles, John, Preston, cornfactor and miller. (Ellis, Cur-
rior street
Norton, Peter, (Whitchurch, innholder. (Manley and
Lowers, London
Townsend, Daniel, Jun, Sherborne, victualler. (Hill and
Meredith, Gray's inn
Rome, Richard, Ferny, merchant. (Shepherd and Adling-
ton, Gray's inn
Richman, John, Skerton, gardener and seedman. (Lam-
bton, Lancaster
Rawthorne, James, Pontefract, merchant. (Lambert,
Hutton garden
Sheppard, Samuel, Marlborough street, victualler. (Daw-
son, Warwick street, Golden square
Smith, Hugh, Blackfriars road, coachmaker. (Kibblewhite,
Gray's inn

Stokes, William, Old Broad street. (Pering, Lawrence-
pountney hill
Sly, George, Wansford, stock-broker. (Rousfield, Sou-
verie street
Slace, Thomas Moore, Old Bond street, picture dealer.
(Kibblewhite, Gray's inn place
Turnbull, William, late of Fenchurch street, now of
Bell Savage yard, dealer. (Morgan, Clement lane
Tanner, George, Bristol, hardwareman and cutter. (Ayr-
ton, Gray inn
Winney, Francis, otherways Nicholas, Woodmancote,
carrier. (Worley, Wine-office court
Wilson, Francis, Great Clafdon, linen-draper. (Langley,
Plumtree street, Birmingham
Webb, Thomas Jones, Nelson terrace, City road,
builder. (Baker, Lincenholpe
Walker, William, Jun. Kingston-upon-hull. (Lyon and
Collyer, Bedford row
Young, William, York, Kingston-upon-hull, miller and
brewer. (Ellis, Currior street

DIVIDENDS ANNOUNCED.

Arbuthnot, Alexander, and Richard Brachen, Philpot
lane, London, and Birmingham, merchant. May 7
Amisley, Samuel, and Philip Johnson, Southwark, gro-
cers. April 23, final
Allen, John, and Thomas New Blanton, cornfactors, &c. 1
April 23
Atkinson, John, Cockermouth, tanner, May 10
Bracebury, Samuel, Balinghall street, broker, April 23
Barker, Richard, Wellington, carrier, April 23
Blane, Thomas, Walbrook, merchant, July 2
Barnes, James, Cock chambers, merchant, May 2
Barnes, Thomas, Fleet street, stationer, May 14
Bowman, John, Water lane, braudy-merchant, April 30
Beaze, Ralph, Live-pool, grocer, May 2
Barrow, Charles, Thames street, oil-merchant, May 7
Blute, Gylbert, West-minster, coffee-house keeper,
May 3
Baker, Thomas, and John Sharland, Exeter, woollen-dra-
pers, separate estate of each, May 21
Bowman, John, John Garford, and Thomas Bowman, Pop-
lar and Lincenholpe, feed-crushers, &c. April 25
Back, Michael, Clapham, York, dealer, May 20
Chippchaff, Robert, quality, linen-draper, April 21, final
Geller, John Daniel, and Daniel and Charles Frederick-
son, Exeter, merchant, April 21
Champion, William, Worktop, late partner with Gillat and
Hawkworth, Sheffield, brewers, April 29
Collins, Charles, Wyck street, cabinet-maker, April 23
Chown, William, Higham mill, miller, April 26
Clay, Joseph, Batley, dry-salter, &c. May 5
Cox, James, Church street, Hackney, oilman, &c. May 7
Corbett, John, Milk street, warehouseman July 2
Dawson, John, Strand, linen-draper, May 7, final
Davis, Oliver, Vine street, St. Martin's, brewer, May 3
Davison, John, Cecil and Jun. and William and Joseph
Davison, Halifax, dyers, joint and separate estates, final
April 27
Dixon, John, Exeter, grocer, May 10
Edwards, Richard, Morgan lane, Tooley street, brandy-
merchants, April 30
Eyre, Benjamin, Hodgkin Atkinson, and William Walton,
Tokenhouse yard, merchants, April 26
Freeman, John, Fleet street, hat manufacturer, April 23
Furley, Mark, John White, and Robert Styling, Shef-
field, silver placers, joint estate, and separate estates of
White and Styling, June 18
Forbes, John, and Robert Tompkins, Lad lane, ware-
housemen, April 25
Feather, John, formerly of Bread-street hill, now of Tooley
street, taylor, April 20
Griffiths, James, Fleet market, vintner, April 10
Griffiths, Vaughan, Paternoster row, printer, May 3
Gibbs, William, Stewerton, wool-baper, April 20
Grice, John, Wandsworth, coachbuilder, May 7
Harley, Joseph, Leadenhall street, silversmith, April 26
Hunt, Joseph, West-minster, glazier, April 23
Hamill, Hugh, Cateaton street, linen-draper, April 29
Harris, Thomas, Prince's street, Prince's square, vintner,
May 1
Huxley, Thomas, Worcester, vintner, April 20, final
Hudson, Samuel, Oxford street, hatter, &c. May 3
Henderson, John, St. Michael's alley, merchant, &c.
May 2
Hamaway, Daniel, Brandon, merchant, April 27
Hall, William, Monmouth, timber-merchant, May 7
Haukins, George, Fifth-street hat, druggist, May 14
Haldon, George, Liverpool, book-binder, May 9
Haddon, Benjamin Minnows, Clunard's inn, scrivener,
May 7
Hancock, George, Exeter, breeches-maker, May 13
Harmer, John, stroud, Gloucester, clothier, May 14
Jones, David, Commerce row, Chichester, baker, April 27
Jones, Thomas, Exeter, builder, April 26
Kendrick, John, sen. Birmingham, bellows-maker,
May 14
Laugham, Joseph, Watford, brandy-merchant, April 25
Latt, John, Brighton, &c. April 28
Lowe, Christopher, and Peter Auber, Gould square, Bour-
nefourt, separate estate of Lance, April 26

Lambard, John, Feuchurch street, flour-merchant, April 23
 Laft, John, All-faints, South Elmham, shop-keeper, April 27
 Laurence, John, and Thomas Yates, Manchester, merchants, May 4
 Leach, James Akew, Jewry street, wine merchant, April 23
 Lukin, George, and William Neve, London, merchants, joint estate, and separate of Lukin, May 17
 Mufkett, John, Cromer, merchant, April 26
 Marshall, James, and John Trewinnard, Cherry-garden street, brewers, April 23
 Mitchell, Henry, Gosport, rope-maker, April 25, final
 Manson, Thomas, Tokenhouse yard, merchant, &c., April 30
 Miles, Richard, Birmingham, maltster, April 25
 Marsh, Robert, Nicholas lane, stationer, April 30
 Masters, William, fen. and jun. Greenwich, wine-merchants, May 21, final
 Moor, Christopher, Swathea, draper, May 17
 Nicholls, Thomas, Birmingham, grocer and feedman, April 25
 Nowell, Nicholas, Fleet street, haberdasher, April 16
 Nix, James, Great Yarmouth, breeches-maker, &c., April 26
 Nantes, Henry, Warrford court, merchant, serving partner of Richard Mullman French Chifwell, separate estate, May 14
 Pratt, Michael, Darlington, druggist, April 23, final
 Parker, Edward, Little Turnstile, Holborn, man's mercer, April 23, final
 Pitkithly, James, Wood street, druggist, April 23
 Page, William, Ware, maltster, May 3, final
 Pierce, Richard, Warminger, clothier, May 6
 Pingo, Waller, Tottenham, scrivener, April 30
 Paul, John, Wischeher, hardwareman, May 17
 Quickfoll, Thomas, Kingston, Hull, dealer in spirituous liquors, April 25
 Richardson, Peter, Portface, bookfeller, April 4
 Roberts, John, Bow common, pot-ash manufacturer, May 7
 Reimer, Henry, Catharine court, Tower hill, merchant, April 26
 Robinson, Elizabeth, Mark lane, cork cutter, April 30
 Rogerfon, Charles, Warrington, dealer, April 20
 Redhead, Robert, Mark lane, wine merchant, May 25

Stalbank, Christopher, Old Road street, printfeller, partner with Charles Remond Berner, April 26
 Stahlchmidt, Frederick, Whitechapel road, grocer, April 26
 Stainsby, John, Cornhill, woollen-draper, April 23, final
 Sutton, William, Saker's hall court, merchant, April 26
 Strickland, Thomas, and Jwinton C. Holland, Liverpool, merchants, separate estates, May 2
 Staples, Elizabeth, Christopher Shaw, Moses William Staples, and Henry Guy, Cornhill, bankers, May 7
 Spittle, Peter, Wednesbury, gun-lock maker, April 25
 Simmonds, John, Canterbury, linen-draper, April 23
 Storey, Thomas, Newgate street, linen-draper, April 23
 Scarbrow, William, St. Neot's, baker, April 26
 Stafford, Robert, Jun. Huntingdon, grocer, April 26
 Shilletoe, John, Tower street, plumber, April 26
 Smith, James, and Samuel King, Newgate street, woollen-draper, April 30
 Sadler, Eliza, Farmer, Gloucester, mercer, May 3
 Snow, John, Strand, linen-draper, April 30
 Tremlet, John, Exeter, draper, April 22
 Turnbull, John, John Forbes, Robert Allen Crawford, and David Shene, Broad street, merchants, separate estates of Turnbull and Forbes, May 3
 Thompson, Henry Dawson, Crewkerne, Surgeon, &c., May 7
 Taylor, William, Harwich, ship-builder, May 14
 Web, John, Bath, cordwainer, April 14
 Wright, Thomas, Doncaster, mercer, &c., April 13
 Whittaker, James, Doncaster, wine merchant, April 10
 Whittaker, Thomas, Highly, inn-keeper, April 15, final
 Wheatley, John, Mark lane, corn-factor, April 23
 Waldo, Joseph John, Francis, and John Jones, Birmingham and Bristol, in England, and of Bolton, in America, merchants, April 23
 Woodward, Peter, King street, Cheapside, warehouseman, April 19
 Wemberley, Thomas, Peele, Huntingdon, grocer, April 26
 Watfon, John, and William Willcocke, Warwick, merchants, April 21
 Waters, Patrick, George and Dominick, Cork, merchants, joint estate, and separate of Dominick, April 26, final
 Winterbourn, Thomas, and Charles Gardner, Carey street tailors, May 14
 Wright, John, Piccadilly, bookfeller, May 14
 Yare, John, Oxford street, linen-draper, May 3

Prices of Raw Hides, Hay and Straw, &c. for April, 1803.

	First Week		2d Week		3d Week		4th Week	
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Raw Hides.								
Best Weifers & Steers, pr ft.	3 8	to 4 0	3 8	to 4 2	3 8	to 4 0	3 8	to 4 4
Middling — —	3 2	to 3 6	3 4	to 3 6	3 4	to 3 6	3 2	to 3 4
Ordinary — —	2 10	to 3 0	3 0	to 3 2	3 0	to 3 2	0 0	to 3 0
Market Calf — —	9 6		9 6		9 6		9 6	
Eng. Horse — —	15s	to 18s	16s	to 18s	16s	to 18s	15s	to 18s
Sheep Skins — —	4 0	to 8 6	4 0	to 7 6	4 0	to 8 6	4 0	to 8 0
Lamb Skins — —	0 0	to 0 0	2 6	to 3 6	2 6	to 3 6	2 6	to 3 6
Prices of Hay and Straw.								
St. James's—Hay —	5 17	6	5 8	3	5 10	0	5 13	0
Straw — —	2 14	0	2 8	0	2 3	6	2 8	0
Whitech.—Hay —	6	— 0	5 15	0	5 5	0	5	7 0
Clover — —	6 16	6	7	— 0	6 10	0	6 16	6
Straw — —	2 6	0	2 2	0	2 1	0	2 1	16 0
Uxbridge.								
New Wheat per load —	— 1	to — 1	— 1	to — 1	— 1	to — 1	— 1	to — 1
Barley — —	— 8	to — 8	— 8	to — 8	— 8	to — 8	— 8	to — 8
Oats — —	— 8	to — 8	— 8	to — 8	— 8	to — 8	— 8	to — 8
Beans — —	— 8	to — 8	— 8	to — 8	— 8	to — 8	— 8	to — 8
New ditto — —	— 8	to — 8	— 8	to — 8	— 8	to — 8	— 8	to — 8
Peas — —	— 8	to — 8	— 8	to — 8	— 8	to — 8	— 8	to — 8
Newbury.								
Wheat — —	42s	to 62s	— 3	to — 3	42s	to 62s	48s	to 63s
New ditto — —	— 8	to — 8	— 8	to — 8	— 8	to — 8	— 8	to — 8
Barley — —	19s	to 22s	— 8	to — 8	19s	to 23s	20s	to 22s
Beans — —	— 8	to — 8	— 8	to — 8	— 8	to — 8	— 8	to — 8
Oats — —	19s	to 22s	— 8	to — 8	18s	to 23s	18s	to 23s
Peas — —	— 8	to — 8	— 8	to — 8	— 8	to — 8	— 8	to — 8

Prices of Hops, Meat, Seeds, Leather, Tallow, &c. for April, 1803.

<i>Price of Hops.</i>		First Week		2d Week		3d Week		4th Week	
Bags.		s.	s.	s.	s.	s.	s.	s.	s.
Kent	—	160 to	180	100 to	126	100 to	168	160 to	180
Suffex	—	160 to	170	100 to	115	100 to	155	160 to	195
Essex	—	160 to	170	— to	—	100 to	155	100 to	155
Pockets.									
Kent (new)	—	168 to	200	120 to	147	126 to	200	160 to	200
Suffex	—	168 to	185	112 to	230	120 to	180	160 to	200
Farnham	—	220 to	280	— to	—	200 to	240	200 to	280
Seeds.									
Canary Seed (per cwt.)	—	80 to	85	80 to	85	80 to	85	80 to	85
Red Clover ditto	—	68 to	65	70 to	95	65 to	96	— to	—
White Clover, ditto	—	80 to	150	90 to	147	70 to	126	— to	—
Trefoil, ditto	—	20 to	65	20 to	60	20 to	56	— to	—
Carraway ditto	—	40 to	45	40 to	45	36 to	42	36 to	42
Coriander ditto	—	28 to	30	28 to	30	28 to	30	28 to	30
Turnip, (per bushel)	—	22 to	26	22 to	26	21 to	30	— to	—
Rye Grass, (per quarter)	—	35 to	60	35 to	60	21 to	50	— to	—
Cinque Foil, ditto	—	— to	—	— to	—	— to	—	— to	—
Rape Seed, (per last)	—	341 to	361	321 to	351	321 to	351	321 to	351
<i>Meat at Smithfield,</i>									
To sink the offal, p. ft. 8lb.		s.d.	s.d.	s.d.	s.d.	s.d.	s.d.	s.d.	s.d.
Beef	—	4 4 to	5 4	4 4 to	5 6	4 4 to	5 6	4 8 to	5 6
Mutton	—	5 0 to	6 0	5 0 to	6 0	5 0 to	6 0	5 0 to	6 0
Veal	—	5 0 to	7 0	5 0 to	6 8	5 0 to	7 0	4 0 to	6 6
Pork	—	4 8 to	5 4	4 8 to	5 4	4 0 to	5 4	4 4 to	5 4
Lamb	—	0 0 to	0 0	6 4 to	8 4	7 0 to	9 0	7 0 to	8 6
Head of Cattle—Beasts about	—	2,000		2,000		2,000		2,000	
— Sheep and Lambs	—	6,500		6,000		8,000		9,000	
<i>Price of Leather.</i>		d.	d.	d.	d.	d.	d.	d.	d.
Butts, 50lb. to 56lb. each	—	18½ to	20½	18½ to	20½	18½ to	20½	19 to	21
Ditto, 60lb. to 66lb. each	—	22 to	23	22 to	23	22 to	23	22 to	23
Merchants Backs	—	19 to	19½	19 to	19½	19 to	19½	19 to	19½
Dressing Hides	—	20 to	21	20 to	21	20 to	21	19 to	21
Fine Coach Hides	—	21 to	23	21 to	23	21 to	23	21 to	22½
Crop Hides for cutting	—	20 to	21½	20 to	20½	20 to	21½	20 to	21½
Flat Ordinary	—	18½ to	19½	18½ to	19½	18½ to	19½	18 to	19
Calf Skins, 40 to 50lb. p. doz.	—	28 to	34	28 to	34	28 to	34	28 to	34
Ditto, 50lb. to 70lb. do.	—	28 to	33	28 to	33	28 to	33	27 to	33
Ditto, 70lb. to 80lb. do.	—	26 to	28	26 to	28	26 to	28	26 to	28
Sm. Seals (Greenland)	—	45 to	48	45 to	48	45 to	48	42 to	48
Large do.	—	51 to	71	51 to	71	51 to	71	51 to	71
Tanned Horse Hides	—	18s to	33s	18s to	33s	18s to	33s	20s to	35s
Goat Skins per doz.	—	— to	—	— to	—	— to	—	— to	—
<i>Price of Tallow.</i>		s.	d.	s.	d.	s.	d.	s.	d.
St. James's Market	—	4	6	4	4	4	6	4	6
Clare Market	—	4	6	4	5	4	5	4	6
Whitechapel Market	—	4	5	4	5	4	5	4	5
Per Stone of 8lb. Average	—	4	5½	4	4½	4	5½	4	5½
Town Tallow	—	76	0	76	0	76	0	74	6
Russia ditto (Candles)	—	75	0	75	0	75	0	75	0
Russia ditto (Soap)	—	70	0	69	0	70	0	70	0
Melting Stuff	—	59	0	60	0	59	0	58	0
Ditto rough	—	42	0	42	0	42	0	42	0
Graves	—	16	0	16	0	16	0	14	0
Good Dregs	—	10	0	10	0	10	0	10	0
Yellow Soap	—	78	0	78	0	78	0	76	0
Mottled ditto	—	86	0	86	0	86	0	88	0
Curd ditto	—	90	0	90	0	90	0	88	0
Candles, per dozen,	—	11	0	11	0	11	0	10	0
Moulds	—	12	0	12	0	12	0	13	0

LONDON PRICES OF GRAIN for April, 1803.

MARK-LANE, Monday, April 4.

Since our last of this day se'nnight, Grain in general has been declining in price. To-day we have had a middling supply of Wheat, but the trade in that article is nevertheless very dull.

Barley comes in great plenty to market, and is 1s. per quarter cheaper.

In Oats, as in Barley, we have had the like plenty, and the like depression in price.

White Peas and Tick Beans, are likewise cheaper.

Flour is in abundance, and a dull sale.

Price of Grain, on board Ship, as under

Wheat	44s to 57s	Malt	40s to 44s od	Grey Peas	27s to 30s od
Fine	58s to 59s 6d	Oats	14s to 17s	Small Beans	28s to 33s od
Rye	32s to 35s	Polands	20s to 21s od	Ticks,	24s to 28s od
Barley	20s to 24s 6d	White Peas	36s to 43s		

Monday, April 11.

We had a middling supply of all Grain at market to-day. The Wheat trade is rather lively, and without any reduction from last week's prices.

Barley and Malt remain dull.

Fine Samples of Peas, as well as Beans, are dearer.

Oats are steady at last quoted prices.

Wheat	44s to 57s	Barley	20s to 24s 6d	White Peas	37s to 44s
Fine	58s to 59s od	Malt	40s to 44s 6d	Grey Peas	30s to 33s od
Rye	32s to 35s 6d	Oats	14 to 19s	Sm. Beans,	30s to 34s 6d
		Polands ditto	20s to 21s 6d	Ticks,	26s to 30s od

Monday, April 18.

Having many buyers at market, and our supply of Wheat not large, that article was deemed 1s. per quarter dearer on the average than last Monday.

Neither Barley nor Malt are lower, though of the former we have a good supply.

The Oat trade is brisk, and the prices better than last quoted.

Peas and Beans are a tolerable supply but without any variation to require particular note or specification.

Wheat	44s to 57s	Malt	40s to 44s od	White Peas	37s to 44s od
Fine	58s to 59s 6d	Oats	1 s to 2 1s	Grey Peas	28s to 32s od
Rye	32s to 35s	Polands	22s to 23s od	Sm. Beans,	29s to 34s
Barley	20s to 25s od			Ticks	25s to 29s 6d

Monday, April 25.

The attendance of a considerable number of buyers at market to day, and a short supply of all Grains, has rendered the price of Wheat, Barley, and Oats, full a shilling per quarter dearer than last Monday.

Peas are likewise a ready sale, and a trifle dearer.

Flour as last week.

Wheat	46s to 57s	Malt	40s to 45s od	Grey Peas	27s to 33s 6d
Fine	58s to 60s od	Oats	15s to 21s	Small Beans	22s to 34s od
Rye	32s to 35s od	Polands ditto	22s to 24s od	Ticks	25s to 29s 6d
Barley	20s to 25s 6d	White Peas	35s to 42s od		

VERAGE PRICES OF CORN, by the quarter of eight Winchester bushels; and of OATMEAL, per boll, of 140 pounds Avoirdupois.^{er}
From the Returns received in the Week, ended APRIL 16, 1803.

INLAND COUNTIES.

COUNTIES.	Wheat.		Rye.		Barley.		Oats.		Beans.		Peas.		Oatmeal.	
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
Middlesex	57	4	36	0	24	2	24	1	30	7	38	8		
Surrey	59	4	34	0	24	3	22	4	32	6	35	0		
Hertford	53	4	35	6	24	8	2	4	36	0	37	6		
Bedford	50	1	31	2	23	1	20	5	26	9	40	4		
Huntingdon	49	2			20	10	17	0	25	4	35	1		
Northampton	52	4	29	6	21	0	17	6	27	8	30	0		
Rutland	54	0			22	0	18	0	28	0	36	0	57	3
Leicester	55	2			22	11	18	7	32	0	32	0	34	2
Nottingham	62	4	36	0	26	8	20	10	33	6				
Derby	63	4			27	0	20	10	36	10	31	0	26	0
Stafford	61	5			26	1	20	5	35	6			28	2
Salop	58	2	38	8	25	6	10	6			38	4	33	7
Hereford	51	7	32	0	24	2	11	8	34	3	33	1	60	2
Worcester	54	5	22	0	24	7	23	7	33	11	39	3		
Warwick	59	4			25	0	20	10	37	2			38	2
Wilts	55	4			24	6	20	6	36	4	34	0		
Berks	56	10			22	6	22	6	33	1	34	9		
Oxford	54	5			21	4	20	2	28	3	33	3		
Bucks	51	0			22	6	21	0	30	1	34	6		
Brecon	53	10	32	0	24	10	16	0			28	0	33	0
Montgomery	56	0			22	5	17	0			33	7	38	2
Radnor	53	10			23	0	19	0			32	0	60	6

Maritime Counties.

Essex	56	6	33	6	22	8	25	0	29	9	29	6		
Kent	54	0			24	9	21	9	30	3	39	0		
Suffex	51	4			24	6	20	10						
Suffolk	53	9	32	0	21	6	19	2	26	13	30	4	48	6
Cambridge	47	11	33	4	19	7	14	11	26	0				
Norfolk	53	2	34	5	20	8	18	0	26	4	31	6		
Lincoln	53	6	32	1	23	6	16	6	27	2	29	0		
York	54	8	36	5	24	2	16	6	29	10	58	0	36	11
Durham	57	4			28	0	19	10						
Northumberland	51	3	40	0	21	1	18	4			35	0	15	0
Cumberland	69	10	50	4	27	5	23	10						
Westmorland	69	6	50	8	32	8	23	3	29	0			17	6
Lancaster	63	0			29	11	21	7	35	10			17	9
Chester	55	3			25	8	18	2					17	3
Flint					30	1								
Denbigh	61	10			29	0	20	0	44	10	48	0	35	11
Anglesea					24	0	14	0						
Carnarvon	60	0	42	0	25	4	16	0					31	9
Merioneth	63	6	48	0	32	0	22	8					33	10
Cardigan	62	0			18	0	12	2						
Pembroke	49	3			20	5	13	4						
Carmarthen	56	0			23	0	13	8						
Glamorgan	54	2			22	11	18	3						
Gloucester	57	2			23	5	22	2	31	1				
Somerset	56	2			24	4	18	10	30	6	30	0		
Monmouth	56	19			24	1								
Devon	61	1			22	4	18	11						
Cornwall	59	6			22	2	19	3						
Dorset	56	9			22	7	19	10						
Hants	53	11			22	6	20	11	33	6				

PRICES OF COALS AT THE COAL EXCHANGE, LONDON For APRIL, 18c3.

Names of Coals.	Mon. 4th	Wed. 6th	Frid. 8th	Mon. 11th	Wed. 13th	Frid. 15th	Mon. 18th	Wed. 20th	Frid. 22d.	Mon. 25th	Wed. 27th
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Adair's Main	39 6										
Allen's											
Allerton											
Baker's Main											
Bedford Main											
Benton		41 6		41 9	39 9				40 6		
Beamish So. Moor											
Benwell											
Biddick Main											
Bigg's Main	43	43 9		44 3	44 3		43	42		42	42
Blackfell											
Bladon Main											
Blyth	40									38 9	38
Boundry											
Bourn Moor		39 3			40 6	40				38 6	38
Bowes Main						40					
Brandling	40 3						40 6		39 3		40
Byker											
Byker, High & Low											
Cowpen		40 6					40 6			37	38
Dewsbury Main											
Eden Main							38 9	39		38	
Flockton											
Greenwich Moor											
Haraton											
Hartley							40 6			38 9	
Heaton Main				43 9			43	42 9		41 9	42
Hebburn Main				43 9			43 6	42	43	42	42
Holywell				39 3	39 3	39 3	39	38 6		37 9	37
Hutton Main							43				
Kenton Main											42
Lambton's Low dit.											
Marley Hill											
Methley Park											
Montague Main				41						39	39
Mount Moor											
Newbottle						39 3					37 9
Old Ducks											
Pitt's Tansfield M.					42		41				43
Primrose											
Rectory					39						
Ruffel's Main								38 4			37 6
Simpson's Pontop											
Silver Tops											
Sheriff Hill											
South Moor						38 9				38 6	
Stanley Main											
St. David											
Team						39 9					
Toft Moor											
Tyne Main											
Usworth Main											
Walbottle Moor						3 93				37 9	
Walker				44	44		43	42	38 6		
Wall's End				44 6	44 9	44	44	43 3	43 3	42 6	43
Wharton											
Willington				44 3	43 9		43		43		42
Windfor's Pontop											37 6
Windfor's Tandf. M.											
Wylam Moor											
Wentworth					39 6	39 3					
Whitefield					40			36 3			
Wooler Main											

A Table of the Prices of STOCKS in April, 1803.

Days	Bank Stock.	3 per Ct. Red.	3 per Ct. Consols.	4 per Ct. Consols.	5 per Ct. Navy.	5 per Ct. Loyalty.	Long Ann.	Short Ann.	Imp. 3 per Ct.	Imp. Ann.	India Stock.	Omnium.	5 per Ct. Irish.	Consols. for Act.	Tickets.
Mar. 28			65		98 $\frac{1}{2}$				64 $\frac{1}{2}$	11 $\frac{1}{2}$	202	12		64 $\frac{1}{2}$	13 0
29			62 $\frac{1}{2}$		96 $\frac{1}{2}$				64 $\frac{1}{2}$	11 1-16		16		62 $\frac{1}{2}$	18 1
30			61 $\frac{1}{2}$		96 $\frac{1}{2}$				61 $\frac{1}{2}$	10 15-16		16		62 $\frac{1}{2}$	18 1
31			63		97				61 $\frac{1}{2}$	11		15 $\frac{1}{2}$		63	18 1
April 1			63		96 $\frac{1}{2}$				62 $\frac{1}{2}$	11 $\frac{1}{2}$		14		64 $\frac{1}{2}$	18 3
2			63 $\frac{1}{2}$						61 $\frac{1}{2}$			15 $\frac{1}{2}$		63 $\frac{1}{2}$	18 3
3			63									16			18 10
4			63												18 10
5			63												
6			62 $\frac{1}{2}$												
7	166 $\frac{1}{2}$	61 $\frac{1}{2}$	62 $\frac{1}{2}$	78 $\frac{1}{2}$	97 $\frac{1}{2}$	96 $\frac{1}{2}$	18 $\frac{1}{2}$	3 15-16	61 $\frac{1}{2}$	11 3-16	204	15 $\frac{1}{2}$	92	62 $\frac{1}{2}$	19 7
8		61 $\frac{1}{2}$		77 $\frac{1}{2}$	98		18 $\frac{1}{2}$				209 $\frac{1}{2}$	15 $\frac{1}{2}$		63 $\frac{1}{2}$	
9		62	63	78 $\frac{1}{2}$	98	96	18 5-16				205	15		63 $\frac{1}{2}$	19 7
10		63 $\frac{1}{2}$	63 $\frac{1}{2}$	79	98 $\frac{1}{2}$	97 $\frac{1}{2}$	18 $\frac{1}{2}$				203	13		65	19 7
11		63 $\frac{1}{2}$	64 $\frac{1}{2}$	79 $\frac{1}{2}$	99 $\frac{1}{2}$	98 $\frac{1}{2}$					205	13 $\frac{1}{2}$		65	19 7
12		63 $\frac{1}{2}$	64 $\frac{1}{2}$	80 $\frac{1}{2}$	100	100 $\frac{1}{2}$		4 1-16				12 $\frac{1}{2}$		64 $\frac{1}{2}$	19 7
13		63 $\frac{1}{2}$	64 $\frac{1}{2}$	80 $\frac{1}{2}$	100 $\frac{1}{2}$	100 $\frac{1}{2}$		4 1-16				12 $\frac{1}{2}$		67	19 7
14		63 $\frac{1}{2}$	64 $\frac{1}{2}$	83 $\frac{1}{2}$	101	100 $\frac{1}{2}$						9 $\frac{1}{2}$		68	19 7
15	167	63 $\frac{1}{2}$	64 $\frac{1}{2}$	83 $\frac{1}{2}$	101	100	19 $\frac{1}{2}$							67 $\frac{1}{2}$	19 7
16		63 $\frac{1}{2}$	64 $\frac{1}{2}$	84	101 $\frac{1}{2}$	98 $\frac{1}{2}$	19 $\frac{1}{2}$								
17		63 $\frac{1}{2}$	64 $\frac{1}{2}$	84 $\frac{1}{2}$	101 $\frac{1}{2}$	98 $\frac{1}{2}$	19 $\frac{1}{2}$								
18	167	63 $\frac{1}{2}$	64 $\frac{1}{2}$	84 $\frac{1}{2}$	101 $\frac{1}{2}$	98 $\frac{1}{2}$	19								
19		63 $\frac{1}{2}$	64 $\frac{1}{2}$	84 $\frac{1}{2}$	101 $\frac{1}{2}$	98 $\frac{1}{2}$									
20	173	66 $\frac{1}{2}$	67 $\frac{1}{2}$	84 $\frac{1}{2}$	101 $\frac{1}{2}$	98 $\frac{1}{2}$									
21	173 $\frac{1}{2}$	66 $\frac{1}{2}$	67 $\frac{1}{2}$	84 $\frac{1}{2}$	101 $\frac{1}{2}$	98 $\frac{1}{2}$									
22	166	63 $\frac{1}{2}$	64	81 $\frac{1}{2}$	98 $\frac{1}{2}$	97 $\frac{1}{2}$									
23		63													

TO OUR READERS AND CORRESPONDENTS.

TWO of the Communications of our very respectable Correspondent, R. Weston, do not come under the denomination of Agriculture, therefore we are under the painful necessity of refusing them insertion. His Remarks on the Cultivation of the Kitchen Garden, and his Table, exhibiting the various modes of measuring land, will appear in our next Number.

We shall, in future Numbers, occasionally take the liberty, and we presume thereby gratify such of our readers as have not seen Dr. Hunter's Georgical Essays, of availing ourselves of the Doctor's liberal permission which appears at the conclusion of his Essays.

An Oxfordshire Farmer's Remarks on the Plan of improving Down-Lands, by successive crops of Turnips, came too late for insertion this month.

The second Letter of T. Weston, on the Subject of Cheese-making, likewise came too late for this month.

THE KOHLRABI.



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THE
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MAY, 1803.

[VOL. VIII.]

DESCRIPTION OF THE KOHLRABI.

WITH A PLATE.

To the Editor of the Agricultural Magazine.

SIR,

THIS invaluable Turnip, of which I herewith send you a representation, and of which, I hope, your Artist will give an accurate Engraving, is, I believe, very little known in this country; but I am convinced the more it is cultivated the more its advantages will be felt by all graziers. It withstands frosts the most intense, as was proved this last winter in Mr. Curtis's Botannical Garden, in Chelsea, where some of these plants weighed seven or eight pounds, and though many of them were notched and hacked on purpose for the experiment, yet the turnip remained perfectly sound and undamaged in any way by very severe weather, while a bed of Swedish turnips, its neighbours, lay quite rotten. Its saccharine qualities are equally remarkable, and both its leaves and its root, which have a flavour of artichoke bottoms, are a very delicious vegetable for the table.

In a small German pamphlet upon Rural Economy, dated Leipsig, 1797, I find the plant mentioned as follows:

“XV. Linnæan Class.—Kohlrabi, above the ground, *Brassica gongyloides*, with eatable root upon the stalk, of which there are two sorts, (Knollen) green and blue. Kohlrabi under the ground, *Brassica Obracea*, *Napo Brassica*, both are equally good as well for man as beast. In transplanting them, their root should be cut off about one-third, and care taken that they are planted sufficiently deep; by this curtailment of the tap root they grow to a much larger size, and avoid becoming tough—the soil for them should not be too wet.”

The seed of this plant has been distributed to most of the principal gentlemen of this country, who so laudably turn their attention to rural concerns, and there is reason to believe, that this year, there will be many acres of this very profitable vegetable raised in different parts of the kingdom, which is now to be sown, as cabbage seed, in beds, and transplanted out in rows towards the 10th of June.

I return you my thanks for the many useful hints I pick up monthly from your valuable Miscellany.

I remain, yours,
A. GENTLEMAN FARMER.

X x

Ag. Mag. Vol. 8,

P. S. I hope shortly to be able to communicate to you an account of the properties attending a species of grass much cultivated in Hungary, and which promises a very remarkable and beneficial effect upon horses.

ON THE SWEDISH TURNIP.

To the Editor of the Agricultural Magazine.

SIR,

AS I have, for more than a dozen years past, been a cultivator of the Swedish Turnip, having sown the seed from the first parcel that was introduced through Scotland by the late Sir William Fordice, you may naturally suppose that I perused with some attention, a letter in your February Magazine, for 1802, (which but very recently fell into my hands;) and the author's remarks upon this truly valuable root are, in general, extremely just; but, I hope, he will forgive me in differing from him in two very essential points, namely, as to its *nutritiousness* and *quantity* of feed, when put in competition with the other sorts of turnips, an acre of which is, I believe, commonly accounted a good one, that will keep, in a fattening state, an hundred sheep a week; but, were it necessary, I could mention some respectable Farmers in this quarter, who could prove they have done a great deal more with the Swedish Turnip; and I have myself fattened a score of wethers upon *an acre and a half* of them, which fully satisfied those sheep (averaging twelve stone) for *fourteen weeks*; whilst their fellows consumed more than double the quantity of the white-round turnip. Their superiority in point of hardness, and in resisting the severest frosts of this climate, also greatly enhances their value: and the advantages they gave in the last, and in the present spring, are again rendering to their possessors, who are, *at length*, fast encreasing around me, are really incalculable. What a sheet-anchor (if I may be allowed to use a nautical term) is a crop of Swedes to the Farmer who has no watered meadows to resort to in the months of April and May, to which time these turnips may be made to hold out for his stock? At the same time enabling him to lay up his artificial grasses as early as he pleases.

I must further remark, in answer to the objections advanced in the abovementioned letter, that this neighbourhood is pestered with as many depredators, on this sweet and most nourishing root—such as hares, rabbits, rooks, wood-pigeons, partridges, &c. as can possibly be met with in any part of the kingdom; but we are by no means deterred from this species of cultivation; and, when once we have escaped those hitherto unconquerable enemies—the fly and slug, we are in little

doubt of being amply rewarded for all our pains and expence in obtaining a crop of the Ruta Baga.

*High-down, near Midhurst,
Sussex, April 9, 1803.*

I am, Sir, your humble servant,
WILLIAM COCKS.

ON THE ROTATION OF CROPS.

To the Editor of the Agricultural Magazine.

SIR,

I HAVE given the rotation of crops much consideration, and the result is a settled conviction, that on every description of soil the most valuable rule would be, *grow two green or root crops for one of corn.*

Agreeably to this system, suppose it was required to break up any old pasture and lay it down again improved, after it had yielded three crops of corn.

FIRST FOR A BARLEY SOIL.

First year.—Pare and burn the turf, plough the land, and sow turnips for sheep food.

Second year.—Sow wheat, as the land may happen to be got into good tilth during the month of February and till the middle of March, and on such parts of it as cannot be got ready so early, sow barley. As soon as possible after these crops are reaped, plough the land and sow it with winter tares.

Third year.—Mow the tares, and give them three or four times daily in racks, cribs, or cradles to sheep, on the land where they were grown, and as they are consumed, prepare the soil with all possible dispatch, and sow turnips for sheep food the following winter.

Fourth year.—Spring wheat, to be succeeded by autumn sown tares, the same as in the second year.

Fifth year.—Tares, to be succeeded by turnips, as in the third year.

Sixth year.—Barley, with much white clover, and a proper portion of Peacey's rye grass, and other grass seeds to continue.

SECONDLY, ON MEDIUM AND STRONG LOAM.

First year.—Pare and burn the turf, plough in the ashes, and sow turnips in rows made across the ridges; during the following winter, feed the whole, if the season favour the soil, or feed as many of them as the season and dryness of the soil will permit, then split and rot the residue of them on the land for manure, or cole may be cultivated in lieu of either the whole or a part of the turnips; and in the same manner for sheep food.

Second year.—Spring wheat, to be succeeded by winter tares, in the same manner as I have described for the second year on a barley soil.

Third year.—Fatten your flocks with the tares as before described, and as they are consumed prepare the soil, and sow either turnips or cole in rows across the ridges, to be served as mentioned the first year.

Fourth year.—Spring sown wheat, to be succeeded by winter tares, the same as in the second year.

Fifth year.—Tares, to be succeeded by turnips or cole, as in the third year.

Sixth year.—Barley, on so much of the land as may happen to be in fine tilth, and oats on the residue, with a large portion of white clover, some of Peacey's rye grass and other grasses to continue.

THIRDLY, THE UNIVERSAL ROTATION.

First year.—If the land be already in aration, fallow and manure it for turnips or cole; if it be in grass pare and burn the turf, plough in the ashes, and sow turnips or cole; in every case for being eaten on the land, when the season will permit, and by splitting, aided by frost, rot the remainder for manure.

Second year.—Spring sown wheat, to be succeeded by winter tares, in the manner described for the second year on a barley soil.

Third year.—Mow and serve the tares to sheep, and then prepare the soil according to its nature, in point of being dry or wet, either on the flat or in rows, and sow turnips or cole, to be eaten or rotted as aforesaid.

Fourth year.—Spring sown wheat, to be succeeded by winter tares, as in the second year.

Fifth year.—Cultivate the two green crops, and consume them on the land by sheep, as in the third year.

Sixth year.—Wheat sown in the spring, to be succeeded by tares in the autumn, as in the second and fourth years.

Seventh year.—The same as the fifth.

This succession of two green crops and one corn crop, may be continued for any length of time; the whole rotation consisting of three crops may be obtained every two years. On this system the land will always be clean and full of animal manure, capable of being laid down to grass at a moment's notice, or of being continued in aration for ever. One moiety of every farm, may, in this manner, annually bear corn for the sustenance of man, and the other moiety may bring to perfection two green crops, which will support herds of neat cattle and large flocks of sheep.

This system admits of being universally applied. It is capable of doubling the present agricultural produce, and that circumstance would certainly encrease the number of inhabitants in the same degree.

This rotation is the more valuable, as it admits of several variations without materially deranging the system. Thus for instance, potatoes might be planted occasionally in lieu of the turnips; and various plants of the cole or cabbage tribe might, at times be introduced, instead of either the winter tares or the turnips. Also variation might be created by occasionally adding clover after the corn, in which case the rotation would stand thus, the first year tares and turnips, the second year corn, and the third clover. The last is vastly superior to any rotation now in use, but it is very greatly inferior to the foregoing course of tares, turnips, or cole, and corn in two years.

I am, yours, truly,

JOHN MIDDLETON.

Lambeth, 11th May, 1803.

ON FINE WOOLLED SHEEP,

To the Editor of the Agricultural Magazine.

SIR,

FOR some time after the introduction of fine woolled sheep; it was predicted by those who were unfriendly to the measure, that the quality of the wool would progressively decline, by reason of the change of climate, of pasture, and other circumstances. Experience however hath sufficiently demonstrated, that this ground is no longer tenable, as may more generally be known by inspecting the produce of his Majesty's and other flocks in this country, as well as by adverting to the several concurring reports on the subject from Denmark, Sweden, Saxony, France, &c.

Another objection succeeds to this, namely, that by extending the growth of clothing wool, coarse combing wools would be so considerably diminished as to injure, if not to endanger, the manufactures in which these are employed.

In reply, I understand it is pretty generally admitted, that should we be fortunate enough to produce a surplus of clothing wool, such surplus might be employed in the coarser articles of manufacture, and even with superior advantage.

Carrying the objection then to the utmost stretch of imagination, namely, that all the sheep in the united kingdom were displaced by substituting entirely a fine woolled race, it must follow, that we should have the produce of these alone to furnish the fabrics of the fine as well as of the coarse manufactures; and the consequence of this would seem to be that the prices would be brought nearly to an uniform standard of equality, and that eventually those prices might probably be, somewhat about the present general average of the kingdom; circumstances I should conceive by no means detrimental to the coarser kinds of manufacture, but certainly, in a high de-

gree tending to promote the extension of the finer manufactures, more especially in foreign trade.

But all this may be considered merely as an assumption scarcely possible to be verified in fact, supposing it practicable in its nature, for there is and ever will be a diversity of sentiment on the subject, sufficient to prevent any thing like a sudden, or very extensive alteration of system, nor is such an alteration by any means necessary.

I imagine the principle object of the advocates for the introduction of clothing wool sheep, is, that we might be enabled to produce within ourselves, a quantity of wool, answerable to that which we have hitherto been under the necessity of purchasing at foreign markets, whereby a million to a million and a half sterling annually might be saved to the country in the balance of trade; a consideration of some importance; but this is not all, our manufacturers would be more regularly and certainly supplied at all times, and more moderate and equitable prices, to say nothing of a variety of contingencies, now more than ever to be apprehended from the jealousy, the rivalry, and the ambition of foreigners, particularly of the French, who, sanctioned by the immediate patronage and encouragement of government, are actually extending the breed of Spanish sheep with all imaginable energy.

But introduce a number of fine woolled sheep equal to answer the present annual import of wool from foreigners would not probably require to displace more than one twentieth of the aggregate flocks of the united kingdom. Some Authors of acknowledged reputation in æconomical arithmetical, estimate the flocks in Great Britain alone to consist of 20 million.*

Now the wool of one million at 4 lb. per fleece, amounts to 4 million pounds weight, which may be taken to be somewhat about the average annual import from Spain; 4 lb. per fleece however is a moderate estimate, and intended so to be, for allowance of waste in scouring, &c. nor does the subject require fractional minutæ. To notice another objection however that hath sometimes been started, namely, *admitting the quality to improve without degeneracy, yet that the quantity of wool would be greatly diminished*, I would beg leave just to remark, for the information of those who have not had the opportunity of experience, that the reverse is precisely the fact.

Spanish sheep carry a heavier weight of fleece in proportion to the weight of the carcase than any other, and by 3 or 4 repeated crossings with othersheep, the offsprings are brought to much about the same standard. For a general idea, the weight of the unwashed fleece might be reckoned at about 1-10th† of the

* See Communication to the Board of Agriculture, Vol. 1.

† I have now a wether sheep in my possession, the unwashed fleece of which in the year 1801, weighed upwards of 9 lb. the living carcase, after clipping 62 lb.

weight of the carcase, but to what other breed may we look even for 1-14th?

I believe no instance can be adduced wherein by crossing with the Spanish, this increase hath not been observable. I have known it to hold in the Ryeland, the Southdown, the Mendip, the Dorset, and the Wiltshire, and have now some lambs of the first cross from Welsh ewes, about which I can at present say nothing, but that I anticipate a similar result.

And remain Sir, your obedient servant,

Bath, May 13, 1803.

NEHEMIAH BARTLEY.

ON THE IMPROVEMENT OF DOWN-LANDS.

To the Editor of the Agricultural Magazine.

SIR,

I BEG leave to offer my testimony in confirmation of the practice of your Correspondent whose signature is a Hill Farmer, in improving Down and other poor grass Land by giving it two successive turnip fallows, and then laying it down with seeds, without taking even one crop of corn from it. I can bear witness to the excellence of this practice, but it is not a singular or uncommon piece of husbandry, it is frequently adopted in my neighbourhood, which circumstance, I think, is a strong argument in its favor. And it is a method, too, used even by what are called downright plodding farmers, which is likewise, in my opinion, a powerful recommendation.

Lord Sherborne, who resides in the vicinity of Burford, and who is probably as good a judge, of what is beneficial or otherwise to land, as any in the island, seldom refuses permission to his tenants to adopt this species of husbandry, even on land, concerning which it is stipulated by lease, "that it shall never be broken up." In the year 1800, his Lordship advanced one step farther than the indulgence here specified, under the severe pressure which then prevailed from the great scarcity of grain, he was induced to comply with the request of at least one of his tenants at Aldsworth, who offered a pound per acre in addition to the usual rent of his land, to be permitted to take one crop of barley after two crops of turnips, and then to lay the land down with seeds.

The result of this permission was an excellent crop of barley, or four quarters to an acre, on land which was not capable of supporting two sheep upon an acre before it was brought under the present mode of culture. The crop of seeds, namely, rye grass and broad-clover, which succeeded the crop of barley, was very early, (which is a consideration in a barren and hilly country of the first importance,) and was very luxuriant, and it still retains these qualities in an astonishing

degré, particularly with respect to the rye grass, and the land promises never to revert to its former state of poverty.

Mr. Peacey, late of Northleach, to whom this country is very much indebted, was the first, I believe, who pursued this method of "making poor land rich," in this part of the kingdom, and which appears to me far more likely to prove of general utility than the system recommended by your earnest Correspondent Wheat & Sheaf.

Hints respecting the above mode of improving barren land cannot be too widely circulated, for we have thousands of acres which might thus be made productive which are now almost useless; and if you can make yourself instrumental in the diffusion of the knowledge of this, you will lay an additional obligation on the public at large, and on an individual

OXFORDSHIRE FARMER.

ON CHEESE MAKING, &c.

To the Editor of the Agricultural Magazine.

SIR,

I AGREE with your Correspondent Verax, in his general principle, as expressed in your Number for January last, page 26, that the quality of cheese is more dependent on the skill of the manufacturer than on the species of food on which the cattle subsist which produces that cheese. And in corroboration of his opinion, I can say, that I knew, a few years ago, an excellent dairy-woman who had constantly resided in, and had learnt the art of cheese making solely from what she saw in Warwickshire, in which county perhaps as little skill in cheese making and as bad cheese is to be met with as in any part of England, who, when she had changed her situation, and was become a resident in the county of Gloucester, where this art professedly exists in high perfection, immediately excelled in the manufactory of Gloucester cheese as much as she had done in that of the former county. And the same care and patient attention which enabled her to excel in one district, would probably have had a similar effect in every other part of the kingdom.

I allow that every species of cheese which we eat may be made from one and the same kind of milk, or from the same land, and in full perfection when a complete knowledge of the different processes is not wanting: but I cannot allow, however, that the quality of cheese is not affected by the quality of the land. There are in every dairy district, with which I am acquainted, certain tracts of land which require a much greater degree of skill and care than other portions of pasture want to make cheese of a good quality from them. Nay, I know certain pastures, in different counties, from

which it has hitherto been found impracticable to make palatable cheese or butter, even by the most skilful dairy women. And this land, although excellent for every other purpose of the husbandman, no change of culture, no change of grasses, has been effectual to render safe and serviceable as dairy land.

I have known certain inclosures, in three different dairy counties, from which various experienced dairy women have attempted in vain to make palatable cheese and butter. The peculiar rancid flavour with which the cheese was tainted, which had been made whilst these particular grounds were under pasture, was discoverable even in the succeeding year. This unpropitious property of certain land I suppose it was that Mr. Knight meant when he used the seemingly contradictory expressions recited by Verax, namely, "I do not know any article more affected by the pasture than cheese, both in quantity and quality:" and again, "I have no reason to suppose the quality of the cheese, or its quantity, depended on the kind of plants." That is, I imagine, he meant to say that more depended upon the nature of the land in cheese making, either with respect to quality or quantity than on the kind of grasses with which it was planted. Or that it was the property of certain land to be productive in quantity of cheese with whatever it was planted, and that other certain portions of land would never produce this article of a good quality whatever might be its herbage.

But I would much rather see an explanation of his own words from Mr. Knight himself, for I am persuaded, from the conversation which I had with him at the late public, liberal, and truly patriotic entertainment, given by Lord Somerville, that he is peculiarly well calculated to unravel any knotty point that can fall within the range of agricultural science. I fear Mr. Knight has not yet seen your Magazine.

Your Correspondent, afterwards, makes, what appears to me a very extraordinary remark respecting oxen. "Mr. Knight," says he, "only notices the Sussex or Devon Cattle, as entering into competition with the Herefordshire. There is another breed that I suppose he is ignorant of, I mean the Pembrokeshire blacks, which, if butchers, or those who work cattle, may be credited, is at least equal to those he has mentioned."

I beg leave here to observe, that there is another class of men to be consulted in this matter besides "butchers and those who work oxen;" the fancy or judgment of the grazier should be at least equally consulted by the breeder of oxen, with the above named persons. And if the grazier will invariably give five pounds more per head for oxen of the Herefordshire, Sussex, and Devonshire breeds than for the Pembrokeshire blacks,

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surely the breeder ought and will pay due attention to this decided preference of the grazier. But besides this, in general both the butcher, and the person who works oxen, entertain the same predilection, and no doubt their opinion is formed on the ground of absolute merit.

Had your Correspondent Verax, or any Pembrokeshire Gentleman, risen to accept the challenge of Mr. Knight, when he offered at Lord Somerville's Meeting, to shew ten Herefordshire oxen against ten of any other breed in the kingdom, a certain smile of astonishment would immediately have occupied every countenance in the room.

We shall be told, in the next place probably, that the Glamorganshire breed (and I have heard this once positively asserted) "is at least equal in merit to any of the above-mentioned breeds:" and that the yoke of Glamorgans lately exhibited in Langhorn's yard, by Mr. Waters, were more valuable than any yoke of Herefords or Devons there shewn, because they so much exceeded any of their competitors in length of leg and enormity of bone.

Yours,

T. WESTON.

ON FATTENING OF SWINE.

To the Editor of the Agricultural Magazine.

SIR,

I CANNOT subscribe to the doctrine of your Correspondent, the Oxonian, which appears in your last Magazine, page 276, that cleanliness is no necessary part of the process in fattening of swine.

From what I have seen of the habits of this animal, I am strongly inclined to agree implicitly with the opinion and assertion of Mr. Saunders on this point, as stated in a former Number of your Publication. For I have almost invariably observed swine carefully reserving a certain part of their habitation as a place of rest, which they have studiously kept free from every species of defilement. And I am convinced that they will never fatten well when they have it not in their power to make such a reservation. The hog is frequently seen carrying straw and other dry materials, in order to form his bed, with a degree of sagacity and method scarcely ever to be discovered in other brute animals.

The hog, which has plenty of food allotted him, will never search for it in mire and dirt: it is merely the want of a sufficiency to satisfy his voracious appetite, and a strong desire which he feels to obtain the roots of certain vegetables, which induce him to explore, and turn up moist and wet soil. Place before him, when in a fattening state, clear spring water, and likewise that which is muddy, and you will never see him quench his thirst with the muddy water.

But I shall confront the authority, which your Correspondent has given us with authority, certainly more weighty than that of Varro. I shall introduce to you Columella, a Roman, manifestly wiser, in the science of agriculture, than the "wise Roman" whom the Oxonian has brought forward as his advocate. Columella wrote later than Varro, and, of course, had his knowledge to improve upon, and it appears that he had read him attentively, and has evidently shewn himself, at least, a more practical agricultural writer than Varro.

Columella, in his book *De Re Rustica*, in treating on the management of swine, says, "but let a diligent swineherd sweep frequently that part of the sty in which the swine are fed, and oftner that part in which they sleep. For although the aforesaid animal is a foul feeder, yet he delights in a very clean bed."

But after the example of your Correspondent, and for the same reason, I shall send you the original latin, as follows:

"Diligens autem porculator frequenter suile converrat, et sæpius haras. Nam quamvis prædictum animal in pabulationem spurce versetur, mundissimum tamen cubile desiderat."

I beg leave to introduce other authority, of a more modern date, of similar import with the above, which may be found in Mr. Cruttwell's Dictionary of Husbandry, (under the word Hog,) published 1779, which is thus expressed: "When hogs are to be fatted in the sty, cleanliness is a very great article. Their food must be fresh and good, they must have as much fresh and sweet water as they chuse to drink."

I am your humble servant,

A CANTAB.

ON CLOVER.

To the Editor of the Agricultural Magazine.

SIR,

AS Clover is a very good and perhaps the best artificial grass we have in the whole island, on account of its affording two good crops; and particularly on account of its being the best of all preparations for wheat, I should esteem it as a favour if any of your Correspondents, by means of your useful Miscellany, can inform me the cause of its dying away in the spring or winter season. After being a full plant at Michaelmas, it is frequently all gone or nearly so by May. If any one can give the reason of its so failing, and above all, a method to prevent it, they will well deserve the thanks of all ranks of Farmers, as well as the public in general, for we should certainly be able to grow more hay and wheat, for if clover does well we are certain our wheats after them do as well, and where our clover fails our wheat never does well,

Therefore it would be a national benefit, could we obtain such information as requested above. According to our method of farming, clover comes in course to be sown once every four years, or by some five years, but if we were to sow it so often as that, we should never have any, we therefore substitute trefoil every other time, and sow clover only once in eight or ten years, and then a great part of it frequently fails.

I can but admire the curious account your Correspondent, Mr. Peter Hall, gives of his sheep feeding off his turnips, I supposed he was the first person that ever attempted to feed turnips off upon strong wet land, as the stock are certain to do more harm to the land than the turnips were worth, such kind of land every farmer knows ought never to be trod upon if possible in the winter, but on the other hand, if he has any light dry land, he cannot pursue a better system, nor perhaps one so good.

In your Number for March, you have a new Correspondent who has used my signature (A Norfolk Farmer,) he resides near Holkham, he says, I live in the opposite part of the county, not far from Suffolk, and shall still subscribe myself,

Your humble servant,

May 19, 1803.

A NORFOLK FARMER.

ON AGRICULTURAL LECTURES.

To the Editor of the Agricultural Magazine.

SIR,

I Live at a considerable distance from London, occupied chiefly in *practical* husbandry, but I am likewise desirous of learning what is agitated in the theoretical departments of agriculture, and wish, by means of theory, to improve, and, as far as may be, perfect our practice. The Metropolis is the quarter from whence we have reason to expect speculative information in its greatest purity: for your great city abounds in Agricultural Boards, Societies, and Exhibitions: and almost every institution, invention, and speculation, which promises utility to individuals or the community, meets ample encouragement.

I wish to ask you, or your readers, whether the very handsome, and very promising proposals which I heard made by a very intelligent gentleman, at Lord Somerville's Public Dinner, Mr. Nicholls, of Castleman House, near Maidenhead, have been favourably received and carried into execution? I hope I shall receive an answer in the affirmative, for surely it was a very liberal offer in Mr. Nicholls to undertake to give a course of Lectures on Agriculture, and to give practical instructions in the use of various implements of husbandry, and this entirely gratuitously.

I am, yours,

RUSTICUS.

A TABLE FOR SHEWING ALL THE DIFFERENT MEASURES, BY WHICH QUANTITIES OF LAND ARE CALCULATED.
Explanation of the Table.

By referring to the table, all the different measures, by which quantities of land are calculated may be seen; and how often one is contained in another, either in long or square measure; and this by the plainest, easiest, and most intelligible method.

Having found the two tiles, the eye is to be directed in a straight line till the two lines meet in one centre: in one way it discovers the number of the less measure in the greater, in long measure; in the other way, in square measure: thus for example: In a mile long, there are 1760 yards. In a mile square, there are 3,097,600 square yards.

Nothing can be more simple than this method, as must be very apparent from the slightest attention to the plate; and it cannot fail being very useful in the admeasurement of land, as it will serve by way of artificial memory, and greatly abridge the calculations.

Inch.		792	12	36	60	198	792	7,920	7,920	33,360
62,726	Link.		1,515	456	7,575	25	100	1,000	1,000	8,000
144		2,295	Foot.	3	5	165	66	660	660	5,280
1,296		20,755		9	166	55	22	220	220	1,760
3,600		57,381		25	2,778	33	132	232	132	1,056
39,204		625	27,225	3,025	1,089	Pole.	4	40	40	320
627,264		10,000	4,356	484	17,424	16	Chain.	10	10	80
1,568,160		25,000	10,890	1,210	4,356	40	25	Rood.	1	8
6,272,640		100,000	43,560	4,840	17,424	160	10	4	Acre.	8
4015,489,600		64,000,000	27,878,400	3,097,600	1,115,136	102,400	6,400	2,560	640	Mile.

Square.

Long.

ACCUSATION OF PLAGIARISM ON PRESERVING TURNIPS FROM THE FLY.

To the Editor of the Agricultural Magazine.

SIR,

AS Purchaser of your Magazine from its commencement, I embrace with pleasure every opportunity of testifying the satisfaction I have in general received from its perusal. It was a work much wanted; made its appearance under favourable auspices, and has been carried on with a degree of spirit and attention, which will render it a valuable addition to our catalogue of agricultural writings. That it may long maintain its reputation is my sincere wish both upon public grounds, as well as the more selfish one of private individual satisfaction.

With a view to promote this great object, as far as is in my power, I shall assume the painful office of a censor, and venture to notice a very gross attempt at imposition on yourself and the public, in your 43d Number; an attempt, which, if not duly animadverted on, and properly exposed, by weakening our faith with respect to the authenticity of those papers which are communicated to us as original, must ultimately tend to depreciate the credit of your work.

In page 107 of the Number above alluded to, is inserted a letter signed R. Weston, Secretary to the Leicester Agricultural Society, containing an account of a method of preserving turnips from the fly; and stated as having been communicated to him from Norfolk. If that letter be, by the public to be considered, the production of him whose signature it bears, either Mr. Weston has become the dupe of imposture, or, daw-like, has endeavoured to deck himself in borrowed feathers. If the latter, justice to the public and justice to yourself, if you duly consider the degree of responsibility for which you stand pledged, require that such an attempt be not allowed to pass unnoticed; if the former (which I most sincerely wish may be the case,) I shall have no doubt but that I shall be entitled to his very sincere thanks for having afforded him the opportunity of resuming his fair fame from the disgraceful ignominy of having been "The retailer of old rags."

In order, as much as possible to facilitate this end; and that I may not be accused of bringing forward a frivolous, unsubstantiated charge, I shall beg leave to refer Mr. Weston and the public, to page 235 of the Second Volume of a work of some celebrity, entitled "The Bath Society's Papers, published in the year 1783. In them will be found almost verbatim the whole of Mr. Weston's Letter. I say *almost* the whole, because some little modifications, some necessary adap-

tations to the present publication, and to the present period, have most undoubtedly taken place. It may not be amiss to touch upon these *slight deviations*. The above-mentioned in Mr. Weston's communication when the three acres of land were tilled in the usual way for turnips, but without manure, is, the year 1797. The collection of the Bath Papers state it in the year 1776. The two subsequent years of the repetition of the experiment are not specified in Mr. Weston's Letter, but from the context can be no other than the years 1798 and 1799. The Bath Papers plainly and unequivocally record the same in the years 1778 and 1779. I shall not dwell upon the other parts of the letter, but only beg leave to remark, that such is the similarity, *totidem verbis*, and *totidem sententiis*, as to leave no doubt but the one was a mere translation of the other.

What degree of reprobation the public may think proper to attach to such attempt, I must leave them to apportion; this letter will speak my sentiments; and I trust your ready insertion of it will unequivocally evince the little share you have had in the deceptive part of the transaction.

I have the honor to be,

Sir,

Your obedient servant,

May 22, 1803.

PHILALETHES.

METHOD OF DESTROYING CATERPILLARS ON APPLE-TREES.

To the Editor of the Agricultural Magazine.

SIR,

IN the months of May and June, apple-trees are frequently attacked with caterpillars, which cause much damage in eating the leaves; and, for want of the nourishment imbibed by them from dews and rains, cause the fruit to drop off, if not stopped in time.

Examine the trees frequently, and as soon as the caterpillars appear, attack them while in their infantine state, before they have done much mischief, for then they are easily destroyed.

Make a fire with weeds, damp straw, or any thing of that nature, which will cause a slow smoke to ascend through the trees; and you must be governed in the making it, according to the wind. If a tree be very large, more than one fire will be necessary; and if there be plenty of fern in your neighbourhood, the ashes will prove a profit.

In a short time you will see the caterpillars suspended by a thread, and they will soon fall to the ground, where they may be readily killed by trampling on them, or having a few ducks to eat them.

If the leaves be very much eaten, before you discover them, it will be proper to water the tree very well with an engine, for no fruit-garden ought to be without one, and the ground also, to cause a fresh vegetation; and if with the draining from a dunghill, the better.

These caterpillars are produced from butterflies laying their eggs in autumn, hatching in September, and forming a web for their protection during the winter; about May and June, when the apple-trees have produced leaves for their food, they come forth.

Whenever you see any of these webs, they should be cut off and burnt. In some seasons great numbers will be found on hawthorn-hedges, especially if clipped.

R. WESTON.

AN ENQUIRY WHETHER BULLFINCHES EAT THE BUDS OF CHERRY AND PLUMB TREES.

To the Editor of the Agricultural Magazine.

SIR,

THERE is a question not yet ascertained, in regard to the buds of cherry and plumb trees frequently dropping, and may be gathered up from under the trees in large quantities, what is the true cause?

By many it is attributed to bull-finches, and various other small birds, who are seen in the trees at that season, and the birds are endeavoured to be destroyed. I would wish this to be cleared up, for I think the birds are friends instead of enemies.

On examining the buds, you will find them perforated with a small hole, and the inside eaten out: this I attribute to an insect, and that the birds come there to feed on them.

To investigate this properly, shoot some of the birds, or catch them with bird-lime; examine the craws: if sound whole buds be found in them, the birds are guilty; but if there be insects, or buds with insects in them, it is a proof that the birds are your friends, and you should protect, instead of destroying them; and I hope some of your correspondents will endeavour to prove which are the aggressors.

R. WESTON.

ON DRAINING AND WATERING.

(Continued from page 250.)

1. **I**N respect to draining those plains or morasses where no fall can be had, the water may in many situations be caught by cutting a long horizontal ditch into the adjoining mountain perpendicular to the inclined plane, which constitutes the side of the mountain, above the level of the morass, so as to intercept all the wall-springs; and may then be conveyed away in wooden troughs or hollow bricks, above the surface; and if some water still finds its way into the morass, this less quantity may be conducted to one extremity of the ground in open drains or covered soughs, and raised by an horizontal wind-mill and centrifugal pump, and thus the morass may be converted into soil of the most productive kind.

2. There may be other situations, as in the Peak of Derbyshire, where pools of water, or morasses, are collected on the hollow summits of hills; which have been the craters of volcanoes in the primeval ages of the world, as Elden-hole near Castleton, which seems to have been the shaft of such a volcano. In many of these basins on the summits of hills there still exist what are called "Swallows," or cavities; where the water sinks into the earth, as it collects, to pass to some distant valley, as Elden-hole above mentioned, and as in the channels of the rivers Hamps and Manifold, between Ashbourn and Leek. In others, as at the summit of a steep promontory called Axedge, near Buxton, and about Broke-house, are unfathomed morasses, which are said in some places not to bear a sheep to pass over them; and that on the more tenacious parts of them it is necessary for the adventurer to step from tassock to tassock, or to carry a long pole horizontally in his hand, like those who skate upon suspected ice, to prevent his sinking over head, if he should chance to sink at all.

It is probable, that by sinking a well, or boring a hole, where such morasses or lakes now exist, into the obstructed shaft of the ancient Volcano, the water might be let off from those eminent morasses, at less expence than by excavating a passage for it some miles in a country of marble.

3. It is possible there may be situations in high countries of marble, or granite, or quartz, where the difficulty and expence of excavating the ground may be too great, as above; in which a syphon might be contrived for the purpose of raising the water from a morass or lake, and conveying it away. Such an instrument might be constructed of bored Riga deals; but as air is liable to collect in the summit of a syphon from the water, which passes through it, it would be necessary to fix at the summit an air-vessel with an air-pump at the top of it;

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which might be moved by a very small horizontal windmill sail, or occasionally by the hand of a labourer for a few minutes perhaps once or twice a day.

4. The draining of those large plains, which lie beneath the level of the sea, is a subject, which belongs to the public, rather than to the individual farmer; and is practised near Linn on the river Cam by locks to keep out the tide, and by windmills to lift or forward the otherwise stagnate water in the fen-dikes. These windmills have vertical sails of the common kind, which move a vertical water-wheel, by which the water is raised a foot or two; but it is probable even this might be done better by the horizontal sail and centrifugal pump, as being a simpler machine, and requiring no attention to turn it to the wind.

It might be a noble work, worthy the attention of a government, that wished to increase the quantity of nutriment, and consequent population and happiness of the country, to employ proper engineers with a number of labourers to environ with ditches every morassy district of whatever extent, which lies beneath the level of the tides, as the fens of Lincolnshire and Cambridgeshire. These ditches should be cut at the feet of the adjacent rising grounds, or of eminences surrounded with fens, like islands in a lake, so as to intercept the wall-springs and land floods, and convey the water thus collected above the level of the morass into the ocean.

But this, it is feared, is an effort not to be expected in the present times, when the enclosure of forests and large commons is prevented by the interest of individuals, or by the difficulty of procuring expensive acts of parliament for every minute district, instead of including them in a general act, so meritoriously contended for by Sir John Sinclair, then President of the Board of Agriculture.

5. Where finally the draining of marshy grounds can not be effected at a responsible expence, some plants may perhaps be cultivated with profit to the cultivator; as in some situations the *festuca fluitans*, floating fescue, *callitriche*, star-grass; or in others the orchis for the purpose of making saloop, by drying the peeled roots in an oven. This might be better worth notice, if the seed could be ripened in this climate for its easier propagation, which probably may be accomplished either by cutting away the new root, as is affirmed in the *Amœnitates Academicæ*; or by planting them in a garden-pot so as to confine the roots in respect to space, which is said in the same work to ripen the seeds of *convallaria*, lily of the valley; and lastly, by cultivating a few on a hot-bed, or in a green-house.

In other situations the *menyanthes*, bog-bean, would flourish abundantly, and might become a substitute for hops in the

brewery, and be equally wholesome and palatable. It is indeed much to be lamented, that we have no grain similar to rice, that will grow in watery grounds in this cold climate, nor any esculent roots or foliage except the water-cress. There is reason to believe nevertheless, that the roots of *nymphæa*, water-lily, or of *butomus*, flowering-rush, may be esculent by simple boiling; or that a wholesome starch might be obtained from them; or lastly, that they might be fermentable into ardent spirit, like the roots of potatoes, or into vinegar.

The *nymphæa nelumbo* is much cultivated in China in their swampy grounds, and in their lakes. The seed is like an acorn, and of a taste more delicate than that of almonds. The roots are sliced and served with ice in summer at their tables; and are preserved in salt and vinegar for the winter. Embassy to China by Sir G. Staunton, Vol. III. p. 214, 8vo. edit. The *nymphæa alba* of our country produces a root of three or four inches in diameter; and though the seed is very small, and perhaps does not perfectly ripen, it has been observed to be agreeable to the palate both in its recent state, and when dry.

If these should not succeed, other quick-growing plants might be cultivated for manures, as typha, cat's-tail, caltha, and others; which should be mowed twice a year, while they are young, and in consequence abound with saccharine and mucilaginous matter ready to pass into fermentation.

The advantages resulting from occasionally covering lands with water have long been experienced in warmer countries, as in Egypt, Italy, and many parts of China; and have of late years been introduced into our own more northern climates. And in the warm climates above mentioned, it is particularly useful in the cultivation of rice for the purpose perhaps of simply moistening the ground.

But the advantages of flooding meadow-lands in this country may be divided principally into three kinds, one of which consists in simply moistening them, which seems to be the principal use of watering lands in warm countries, where the water is derived to them almost every evening from reservoirs above them, or from water-wheels worked by asses, and which is sometimes done in the gardens of this country by watering pans and human labour.

The second and greater advantage of flooding lands in this climate consists in deriving much water over them from rivers or from strong springs, and thus by supplying them with the muddy sediment brought down by rivers, after sudden rains, or with the calcareous earth dissolved in many springs. All those springs, which pass through marl, or chalk, or other lime-stone, are replete with calcareous earth; which they hold in solution, as those about Derby and about Matlock, which earth they deposit on standing on the soil, or in slowly

trickling over it. And river water in rainy seasons is loaded with diffused as well as with dissolved materials from the neighbouring country.

Both these therefore are of great service in flooding meadow-lands, and perhaps almost all other lands. But those springs, which pass only through siliceous sandstone, as those at Litchfield in Staffordshire, have no calcareous earth dissolved in them, as it has been found by experiment; and the water of most rivers, when they are not swelled by rain, are also too pure for this purpose; as they have deposited already in their course the calcareous earth, which might abound in the springs, which feed them; as it has been observed by experiments on the water of the Derwent at Derby, which though it runs for many miles about Matlock through a bed of limestone, yet when clear of mud from rains, it contains no calcareous earth, as it passes by Derby, though the springs in the vicinity are replete with it. Neither of these sources of water can therefore do much service for this second design of depositing limestone, or mud.

The third advantage of flooding lands in this climate is for the purpose of defending them from the cold of the winter or vernal months. For this advantage the water from strong springs, which are always at 48 degrees of Fahrenheit in this country, is preferable to river water, where it can be had in sufficient quantity; since the water of rivers is of the same degree of cold as the atmosphere, till the thermometer sinks to 32. But both of them, when they form a sheet of thin ice, as they cover a meadow, defend the roots of the grass from severer degrees of cold; which are thus preserved, and those of some grasses are believed even to vegetate beneath the ice, as the rein-deer moss in Siberia vegetates beneath the snow in a degree of heat about 40, which is the medium between that of the under surface of the thawing snow, which is 32; and that of the common heat of the interior parts of the earth, which is 48; and thus the crops of grass in this cold climate may be wonderfully forwarded; so as almost to double the product of the year, if well managed and carefully attended to.

The method of forming the channels to convey the water consists in carrying the first or principal aqueduct along the highest part of the meadow, and deriving others on the summits of the lands; if the meadow has formerly been ploughed into ridges and furrows, these again are to be divaricated so to pass into the furrows; all these branches of the stream are again to be collected from the furrows, and discharged at the lowest part of the surface.

Something similar to this must be managed on more level grounds, so as to conduct the water over the whole meadow, and also to carry it off, that it may not stagnate; but that a moving sheet of water about an inch in depth may continually

flow over the whole for the purpose of depositing the materials dissolved or diffused in it. The construction and width of these channels, with many useful observations, are shewn in a pamphlet of Mr. T. Wright, on "the Art of Floating Land in Gloucestershire."

Mr. Wright in the treatise above mentioned advises, that the aftermath of grass-land should be eaten off bare by the beginning of November, and that the channels for conducting the water to and from the meadows should be then cleansed and repaired; and that the water should be suffered to flow over the meadow for three weeks; and that then the land ought to be exposed to the air for a few days; since some of the grasses, and those of the most nutritive kinds, he believes will not much longer exist under water. By this early preparation, he adds, that advantage is taken of the autumnal floods, which bring along with them a greater quantity of putrescent matter than those of winter.

In the months of December and January Mr. Wright adds, that the chief care of the floater consists in keeping the land sheltered by the water from the severity of frosty nights; but advises through the whole of these months every ten or fourteen days to expose the land to the air by laying it as dry as possible for a few days; and always to discontinue the flooding, when the land is covered with a sheet of ice.

In the month of February greater attention is required; if the water be suffered to flow over the meadow for the space of many days without intermission, a white scum is generated, and the grass is much injured. And he justly observes that, if you now take off the water, and expose the land in its wet state to a severe frosty night, a great part of the grass will be cut off.

Mr. Wright adds, that in Gloucestershire two methods of avoiding these injuries are practised: one is to take off the water by day to prevent the production of the scum, and to turn it over again at night to guard against the frost. The other is to take off the water early in the morning; and, if the day be dry, to suffer it to remain off a few days and nights; for if the land experiences only one drying day, the frost at night will do little injury. But the former of these practices, where it can be easily done, he thinks preferable to the latter.

In the beginning of March the grass on well-flooded meadows will generally be so forward, as to afford abundant pasturage, and the water should be taken off for about a week, that the land may become dry and firm; and the cattle should for the first week be allowed a little hay in the evening, if the weather be cold and rainy.

In the month of April the grass may be eaten off quite short and close, but not later; since if you trespass but one

week in the month of May, the crop of hay, which is to succeed, will be much impaired; and the grass will become soft and woolly, and the hay have the appearance of lattermath hay, and be less valuable.

At the beginning of the month of May the water is again thrown over the meadows for a few days; which simply by moistening the land will in most seasons, Mr. Wright observes, ensure a crop of hay of one ton and a half on an acre in the course of six or seven weeks.

The water is sometimes again used, when the hay is carried off, but may render the lattermath, he thinks, unwholesome to sheep. But this is particularly serviceable, when the water is rendered turbid by sudden rains. Some have taken off two hay-crops in one year, but this Mr. Wright thinks is imprudent in this climate; which, however, I suppose might be accomplished, where the first growth is not eaten in April, and where much turbid river water or calcareous spring water can be used between them.

Mr. Wright further observes, that the hay on these flooded meadows is little inferior to upland hay, if it be cut at its proper age; but that some avaricious farmers have permitted it to remain uncut till it produces three tons on an acre, and that then it will become long and coarse, and little better than straw. But that when it is cut in June, and has been flooded well with muddy water in the winter, that it becomes little inferior to the best upland hay.

The hay, I should suppose, which is cut before the grass is in full flower, while the saccharine juice still remains in part at the joints of the flower-stems, must contain the most nutritious matter; which is afterwards absorbed as the flower expands, and as the seed ripens, and forms the meal or starch of the seed-lobe, and is shed upon the ground, or consumed by birds, and the grass-stems and their leaves become simply like the straw of ripened corn.

This will appear of more importance to any one, who attends to the difference of the pods or husks of peas, or of kidney beans, during the early state of the enclosed seeds, and again after the seeds become ripe. The pod or capsule is at first sweet and mucilaginous, so as to supply an agreeable and nutritive food, the latter of which, and sometimes the former, are eaten at our tables, afterwards as the seeds, which are attached alternately to each side of the capsule, drink up by their vegetable life after impregnation the saccharine and mucilaginous matters there purposely deposited for them; the capsule itself becomes a mere fibrous membrane not better than the straw of ripe grains above mentioned.

It may be here repeated, that one great use in this country of flooding grass-grounds, in winter, and in early spring, so

as to let a thin sheet of water perpetually flow slowly over them, is, that it will in frosty nights, when the cold is not much below the freezing point, produce a thin sheet of ice, and thus prevent the cold from affecting the roots of the grass beneath it; which may thus be two or three weeks forwarder than on other lands; for ice is so bad a conductor of heat, that water is not readily frozen beneath it; and especially if it stands hollow, so as to enclose a stratum of air between itself and the water beneath.

This seems to have been attended to by the philosophers in the French army, when they passed over ice to subdue Holland; fearing lest the ice should be too weak for the passage of their troops and artillery, they bored many holes through it every night; and then by pressure on its surface the water was made to rise through these holes, so as to stand an inch above the surface; which being thus exposed to the cold air of the night, become frozen before morning; and thus in a few nights thickened and strengthened the ice ten times more than would have been done naturally by the slower freezing beneath it.

To recapitulate the advantages of flooding, first, not only the common meadow grounds are enriched, but morassy ones are consolidated, by the mud brought over them from river water; or the calcareous sediment, and azotic or nitrogen air, from most spring waters, during those seasons when grass does not naturally make much progress in its growth. 2. They are defended from frost by the flowing water, or by the ice, when it is frozen; and thus a much forwarder crop of grass is produced, as may frequently be seen over pieces of ground naturally moist; which look green in the spring, some weeks before that on drier land in their vicinity. 3. The ground is rendered more easily penetrable by the roots of grass, both by its being kept softer, and also from its being seldom frozen below the surface in the vernal months. 4. This early crop may be eaten off by cattle or sheep, and a new flooding for a short time will forward the growth of it so as to produce a good crop of hay. 5. After the hay is removed another flooding for a short time ensures a luxuriant growth of autumnal grass; or aftermath.

The difficulty of getting moist lands free from rushes is said to be readily overcome by flooding them, and that especially after previously mowing them, as their spongy pith will then absorb so much water, as to cause them to putrify by its stagnation; or if this be done in autumn or spring, and a frost supervenes, the water in their pith by expanding, as it becomes ice, bursts and destroys their organic structure.

The following conclusion is copied from Parkinson's Experienced Farmer. "Upon the whole, artificial watering of

meadows is a most profitable improvement; it robs no dung-hill, but raises one for the benefit of other lands; for if a farmer can water ten acres of land, cut the grass and use it either in the stall or fold-feeding, he might keep perhaps forty beasts; and by working the manure made by them into a compost, and applying that compost to other lands, he might either have a great deal more hay for the winter, or feed more cattle in the summer."

Two or three observations of importance should be here inserted. 1. That in flooding lands for a considerable time, the water should only trickle over them from the canal, which leads it along the more elevated parts, and not stand on it like a fish-pond; as in the latter case the grass root will perish in a few weeks in the early spring; to the great injury of the farmer, an example of which on several acres I once witnessed.

As soon as any materials thus begin to putrefy beneath the water, a scum of white froth arises owing to the air set at liberty by putrefaction; which is supposed by some to injure the grass, whereas it is a consequence rather than a cause of injury, and shews, that the water has stagnated too long; and should either be immediately drawn off, or supplied by a running stream; but the former should probably be preferred: if the stems of grass are so tall as to rise above the running water, it is probable, that their death and putrefaction do not so soon occur.

Secondly. It is observed by gardeners, that in dry seasons, if you begin to water any kinds of plants, you must continue to repeat it; otherwise that they are sooner injured by dry weather, than those which have not been watered. This fact also I think I have observed, and it may depend on the circumstance of the roots of annual vegetables shooting themselves lower down in dry seasons in search of moisture; but if this be given them in the commencement of their growth, they then shoot their roots more horizontally, and are afterwards in consequence sooner destroyed by the subsequent dry weather.

Thirdly. Much cold water given suddenly to plants, which were nearly perishing with heat and dryness, will I believe sometimes injure or destroy them, as I saw occur this year, 1798, in June to some rows of garden beans; which after being flooded for one night withered, and in part died, on the following day, which was probably caused, not by the excess of water, as plants of this genus would seem to bear much moisture from an experiment of Lord Kaimes, who says in the Gentleman Farmer, that he planted a pea on some cotton-wool spread on water in a phial, and that it sprung up, and shot roots through the cotton-wool into the water, and produced large pods full of ripe seeds. The death of these

beans was more probably occasioned by the torpor of the system induced by cold, as occurs to those who have injudiciously drank much cold water, or plunged into a cold bath, when they have been previously much weakened by the unnecessary activity of the system occasioned by continued heat, or great exercise.

Nor is there reason to suppose that to whatever extent this mode of cultivation of grass could be carried in this country, that any injurious effects in respect to the health of the inhabitants could be produced; as this mode of flooding is not by stagnant water, as in rice grounds, which D. A. J. Cayniles, who has lately published a work on the cultivation of rice in the kingdom of Valencia, believes to be injurious to the health of the inhabitants. *Magaz. Encyclop. T. 3.*

In these cold climates, the vicinity of running streams may perhaps be rather salubrious than the contrary; as the air is cooled in hot weather, and warmed in cold weather, by its contact with their ever-changing surfaces, till they become frozen. I at this moment recollect many, who lived to an healthy old age in the valley of the Trent, near the very edge of the water, whose names I could repeat. But stagnant waters, from which putrid exhalations arise, produce agues in cold countries, as in the fens of Lincolnshire; and putrid fevers in hot ones; from which our armies suffered so much at St. Lucia, both in the present and the last war.

This practice of flooding is capable of being extended to a wonderful degree in this country, not only by using the natural falls of brooks and springs, and by occasionally damming them up to supply higher situations; and by effectually spreading the land-floods from accidental showers over the inferior lands to a great extent. The water, which is dammed up to supply the numerous mills, might be diffused in rills over a thousand meadows, or part of it be raised up by pumps to higher grounds; and thus fertilize and enrich the country; while the grinding of corn, spinning of cotton, rolling iron bars, and other mechanic purposes, might be effected by wind-mills, or steam-engines, in almost every part of the island.

For this purpose likewise the new method of raising water by the *vis inertia* or acquired *momentum* of moving streams might be well applied, which was formerly used by Mr. Whitehurst, of Derby, on a small scale, at Oulton, in Cheshire, as described with a plate of the machine, to which an air-vessel is ingeniously added, in the *Philosophical Transactions* for the year 1775, Vol. LXV. p. 277, and which is now adapted to variety of ingenious machinery by M. Boulton, Esq. of Soho, near Birmingham.

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For the Agricultural Magazine.

We have just received the very able speech delivered by Lord Carrington at the Board of Agriculture on Tuesday, March 15, 1803, on his Lordship's resignation of the high and important office of President of the Board. As this Speech is replete with matter of general interest, as it gives a clearer illustration of the design, the scope, and utility of the institution, than has hitherto appeared before the public, and as at the same time, it contains a full explanation and vindication of certain parts of the conduct of the Board which have of late fallen under a degree of censure, we shall not content ourselves with giving a partial detail of its substance, but we feel it a duty which we owe to the Board, to our readers, and to the community, to lay it before them, *literatim and entire.* Editors.

THE SPEECH OF THE RIGHT HON. LORD CARRINGTON, DELIVERED AT THE BOARD OF AGRICULTURE ON TUESDAY, MARCH 15, 1803.

ALTHOUGH it was usual for our two last Presidents to lay before the Board, every year, a detailed account of all that had been done, and all that was proposed to be done, towards accomplishing the objects of our Institution, and afterwards to give the same to the Public as a printed speech, I have not hitherto thought it necessary to adhere to this custom: But at the present moment, when I am about to quit the Chair, I have reason to believe that some account may be expected from me, of the conduct of the Board, during the period of three years, in which I have had the Honor to preside. I will therefore endeavour to recal to mind some of the leading particulars of our Transactions, which, either from their own importance, or the peculiar circumstances attending them, have most attracted my attention.

Indeed, it cannot be thought necessary to arrange and class, under distinct heads, all the occurrences of our weekly meetings. They comprehend whatever relates to the improvement of the Agriculture of the Kingdom, in its various branches, and are well known to most of those who hear me. To excite Emulation and promote Inquiry; to encourage and diffuse improvements in the construction and use of Instruments for abridging labour; in adapting a proper rotation of Crops, and a judicious selection of Manures, to different soils; and to endeavour, for all these purposes, to combine the results of Science with the practical knowledge of Agriculture: to discuss and consider new projects; to recommend such as are useful; to discountenance such as are visionary and impracticable; and, above all, to infuse into the minds of those honorary members that come among us, a just sense of the importance of the study of Agriculture as a Science, and of the practice as an Art;—these have been our constant occupations: and if it should appear that, in some instances, our just expectations of success have been disappointed, still I think it must be admitted, on a review of our proceedings, that we have been usefully and honourably employed—honourably to

ourselves, because usefully for the Public. Passing by, therefore, the large field to which I have pointed, I shall content myself with noticing a few of the most prominent features of our proceedings.

The first, and indeed the most important object of our attention, arose out of the Scarcity in the year 1800. Early in the spring of that year, the Board, with a wise and prudent foresight, took into consideration the state of the country, respecting wheat-corn: they had reason to apprehend that the stock was nearly exhausted, and were anxious to ascertain, as far as it could be then ascertained, what was the general expectation of the ensuing crop. For this purpose, I was directed to write letters of inquiry to all parts of the kingdom. The result was, with few exceptions, a full confirmation of the fears of the Board; little being left of the last year's crop, and the expectation of the growing one being rather under the usual average on the dry and warm soils, and very deficient on the clays and cold lands. After much consideration on the subject, no remedy occurred to the Board, so certain, safe, and economical, for supplying the expected deficiency, as the importation of a sufficient quantity of Rice from India.

I had previously consulted with some of his Majesty's Ministers, who, in consequence, made such Communications to the India Company, as led to an agreement on their part, to allow the importation of Rice from India, duty-free: but with specific directions to their Servants, "that (whether individuals should engage or decline embarking in these speculations) they were by no means to send any on the Company's account."

This permission, so restricted, appeared to the Board a precarious and inefficient remedy. In the month of June, I was therefore requested to communicate to the same quarter, the apprehensions of the Board, together with the letters which I had received in confirmation of them. Notwithstanding I met with every mark of attention from Government, yet from some cause, to me unknown, though doubtless unavoidable on the part of the Directors, no alteration seems to have been made in the orders sent out to India; nor did the letters, conveying those orders, bear date till the 28th of August. The Parliamentary Bounty on the importation of rice (which guaranteed a selling price of 35s. per cwt.) was, on the 2d October following, unfortunately suffered to expire. What followed we all remember. The scarcity grew more urgent, and His Majesty was advised to call Parliament together early in the winter, to consider the best means of relief. The Bill granting a bounty on the importation of Rice, &c. was renewed, and continued to a long period. Great encouragement was held out to send ships to India; and nineteen thousand tons of

Rice were imported from thence ; but unfortunately it did not arrive till after the abundant harvest of 1801. The article, in consequence, became a mere drug, and the Government was called upon to pay no less a sum than three hundred and fifty thousand pounds, to perform the Parliamentary guarantee to the importers. It is evident, that had it been possible for the exertions, which took place afterwards, to have been used with the same promptitude and success on the first application of the Board, besides the great relief which would have been afforded, this whole sum would have been saved ; as the Rice would then have arrived at the most critical period of the scarcity, and have borne a high price. Nor is this all—to the pecuniary loss must be added, whatever was the difference in price at that time, and large it must have been, between a proportionate quantity of foreign corn imported (not less perhaps than four hundred thousand quarters) and the cost and charges of the Rice in question. Not wishing to dwell longer upon this subject, I shall only express my regret, that the Board was deprived of the satisfaction which they would have felt, had the information which their diligence had procured, and the timely suggestions founded upon it, been the means of averting any of the sufferings of the Public at that important Crisis.

The next topic for your notice was one which has been made the pretence for calumny, misrepresentation, and invective, greater than, I think, have been often before thrown upon a Public Body. Upon a cool and deliberate review of our conduct upon that occasion, I feel nevertheless, that the Board is not only undeserving of censure, but, in my judgment entitled to commendation. I allude to Letters sent by order of the Board to the Sheriffs of the different Counties, to be laid before the Grand Juries at the Summer Assizes in the year 1800. The origin of that transaction you well remember. After the Board had suggested the measure above-mentioned for relieving the existing scarcity, they naturally turned their attention to the best means of preventing its recurrence ; and nothing appeared so likely to prove effectual for that purpose, as the enclosure of the Waste Lands. In the midst of their inquiries, they received from the very respectable Baronet who acted as Foreman of the Grand Jury of the County of York at the preceding Assizes, certain Resolutions upon this very subject, which had, unknown to the Board, been entered into by that body. These resolutions contained very forcible statements of the great fluctuations of the price of corn in late years ; of the insufficiency of the produce of the country for its consumption ; and of the consequent necessity of converting to productive husbandry the immense tracts of uncultivated wastes. The various proofs of these propositions were enu-

merated, and a recommendation was addressed to their Representatives, to endeavour to obtain Parliamentary authority for such enclosure.

This Communication exactly coinciding with the Ideas of the Board, it occurred to them, that a concurrence of other Grand Juries to the same point might be the means of forwarding the object; and I was therefore directed to transmit the Resolutions of the county of York to be laid before the Grand Juries of the different counties at the Summer Assizes. The answers from most parts of the country were highly favourable to the proceeding, and I was little aware of the attack that was in contemplation.

It so happened, that amongst the Resolutions of the county of York, which run to great length, there had been introduced, towards the close of them, an observation, that the practice of taking tithes in kind, was an obstacle to the improvement of Agriculture; and an opinion was given in favour of a fair and just commutation. This suggestion, however, was only collateral to the principal object, and had therefore not attracted at that time the attention of the Board, which had wholly and exclusively been bestowed on the waste lands; and I do not believe that a single member recollected that the subject of tithes, in general, had been touched upon. But in the spring following, when, as Chairman of a Committee appointed by the House of Lords on account of the dearth of provisions, it became my duty to bring in a bill for enclosing the waste lands (which had the misfortune to displease the great legal authorities in that House), a formidable attack was made, not so much upon the bill directly, as upon the Board of Agriculture. Its views and its conduct were represented as inimical to the Church-Establishment: the application to the Grand Juries was severely reprobated; the only object of which was supposed to be an attack upon the institution of tithes, under the pretence of enclosing the waste lands. The language of those surveyors, who, at the commencement of the Board, had animadverted on this subject, were alluded to, as proofs to the same effect. In vain I stated, that though it was impossible to deny that the collection of tithe in kind operated unfavourably to Agriculture, yet that it never had been the intention of the Board to call in question the general propriety of tithes as a provision for the Clergy; this being a subject which on no occasion they had ever discussed, conceiving it not to be immediately within their province; that the observations upon tithes, which had been complained of, were printed many years ago; and that the Board had in the title-page of those very books, expressly disclaimed all responsibility for the particular opinions contained in them; each of those publications being intended merely as a general sketch (to be corrected by

future inquiry) of the Agriculture of the particular county to which it related. In vain I urged this, and more. The opinions thus disclaimed were nevertheless made the grounds of attack upon the Board of Agriculture, by those Law Lords who disliked the bill, which, whatever might be its defects, was certainly as little liable to endanger the Church-Establishment, as it was, in the opinion of those who framed it, well calculated to promote the Agricultural interests of the kingdom. The sentiments, which these great authorities uttered in debate, have been since frequently revived and enlarged upon in some of the most violent periodical publications, as undeniable proofs of a conspiracy of the Board of Agriculture against the Church of England.

I shall not trouble you to hear again the Resolutions of the county of York, as they have been frequently before us; but in recalling your attention to the proceedings of the Board upon them, allow me to ask, whether any fair man can be induced to believe, that the gentlemen who were present, whose names you will hear read, and who for talents, integrity and estimation in the country, may bear a comparison even with the Noble Lords alluded to, could so demean themselves, as to make a proposal, in itself avowedly unobjectionable, a cover for introducing another of a totally different nature? The Board will recollect that, at that time, not one syllable on the general subject of tithes was mentioned: the waste lands, and the waste lands alone, were the object of our contemplation. The Secretary will now be pleased to read the Resolutions of the Board, of the 20th of May, and my Letter to the Sheriffs, of the 26th of June, which are irrefragable proofs of this fact.

EXTRACT FROM THE MINUTES.

" *Tuesday, May 27, 1800.*

" PRESENT :

" THE RIGHT HON. LORD CARRINGTON, PRESIDENT,

The Right Hon. Sir Joseph Banks,	Lord Romney,
Bart. K. B.	Sir Christ. Willoughby, Bart.
The Surveyor-General of Crown-	Sir Will. Geary, Bart. M. P.
Lands, M. P.	Sir Henry Fletcher, Bart. M. P.
Duke of Bedford*,	Sir John Call, Bart. M. P.
Earl of Winchelsea,	John Conyers, Esq.
Earl of Egremont,	Langford Millington, Esq.
Earl of Hardwicke,	Henry Vavasour, Esq.
Lord Viscount Wentworth,	

" The Resolutions of the Grand Jury of the county of York being read,

" RESOLVED,

" That a Circular Letter be written by the President to the High Sheriffs of the respective counties of the kingdom, enclosing the Resolutions of the Grand Jury of the county of York, and requesting that they may be laid before the Grand Juries for their consideration, at the ensuing Summer Assizes.

* The Duke of Bedford was not present when the Resolutions passed, but his Grace's name was inserted in the Minutes by his particular desire.

“ RESOLVED,

“ That this Board will, immediately on its meeting after the recess, take into consideration the propriety and utility of a general enclosure bill, and particularly the best method of enclosing small commons and wastes :

“ RESOLVED,

“ That, in the mean time, any information that can be communicated on the above subject, will be thankfully received by this Board, by letter addressed to the President :

“ RESOLVED,

“ That the Board earnestly recommends the consideration of this interesting subject in all its branches, to the Official, Ordinary, and Honorary Members ; and that they will be pleased to communicate the result of their inquiries to the Board, by letter to the President.”

(CIRCULAR.)

Copy of the Letter from the President of the Board of Agriculture to the High Sheriffs, dated June 26, 1800.

“ The Board of Agriculture, deeply impressed with the distress occasioned by the great scarcity of the necessaries of life, have turned their serious attention to the best means of preventing a similar calamity in future. The result of their inquiry is an opinion, that the enclosure of waste lands and commons is one of the most likely means to effectuate this end. It gave me therefore much satisfaction to receive from the Grand Jury of the county of York, a copy of certain resolutions which they had unanimously entered into, at the last Assizes, on this interesting subject. The scarcity has since so much increased, as to render their observations every day more forcible and just.

“ I am desired by the Board to transmit to you these Resolutions, and to request that you would be pleased to lay them before the Grand Jury of the county of _____, at the ensuing Summer Assizes, together with the Resolutions of this Board, which I have also the honour of sending enclosed. It is impossible to call the attention of the public to a subject of greater national importance ; and should the respectable bodies to which I have addressed myself, express their opinion in favour of the measure, by adopting these Resolutions, or by framing others more congenial to their own sentiments, I cannot but entertain the most sanguine hopes, that the attention of the Legislature may be speedily directed to carry these desires into effect, as the Board has already received from several Members of both Houses of Parliament, assurances, that they will support any practicable plan of a General enclosure which may be brought forward.

“ I have the honour to be, &c. &c. &c.

(Signed) “ CARRINGTON, President.”

But it was also urged by the opponents to the bill, that an application to the Grand Juries, or any subjects but those for the cognizance of which they are assembled, must necessarily be improper. I am free to admit, that Grand Juries ought never to be made parties to political discussions, though I believe that some of those who most vehemently objected to the conduct of the Board, have in times of great party heat, not always felt themselves restrained by this consideration. But I must contend, that to help forward a plan for cultivating the waste lands, it would be difficult to find any Gentlemen more exactly fitted to act, than that description of which Grand Juries are composed ; or any, whose opinions would have a greater effect on their Representatives in Parliament. They

are always men of liberal education; many of them Acting Magistrates; and coming from different parts of the country, must, from personal observation, be able to judge of the relief to be expected from this measure, in their particular district.

With regard to the bill, which, as Chairman of the Committee of the House of Lords, I have the honour of proposing in Parliament, and which failed of success, it would lead into too much detail, to enter fully into the consideration of it; and I am the less induced to do so, because, as I have already hinted, the objections made to the bill rested chiefly on the general imputations cast on the Board of Agriculture, and not so much on any examination into the nature of its provisions. I will only say, that it was framed after mature deliberation, and seemed to be most peculiarly applicable to two descriptions of waste lands, namely, those where the commons are so large, and the rights so mixed between different parishes, that it is almost impracticable, in the ordinary way, to obtain consents? and next, to those wastes, of which the number in this country is immense, where the quantity of land is too small to bear the expence of a separate bill. But it was hardly to be expected, that a measure which innovated on the common practice respecting enclosures, and which, though without foundation, was considered as annihilating or abridging the profits of large descriptions of individuals, should pass without opposition. I should, however, have pressed the bill forward, regardless of the formidable battery which had been raised against it, but unfortunately the Committee of Lords, who framed it, suffered, in an evil hour, one of its leading provisions to be altered in a manner that, in my opinion, would have made the bill in a great degree nugatory and ineffectual: I was therefore as anxious to have it withdrawn as any of those Noble Lords who opposed it.

Since that time the bill has not been renewed, nor has the Board taken any subsequent measures on the subject. Their conduct, in this respect, has my full approbation. The crisis in which the bill was produced, was particularly favourable to it. A scarcity, almost approaching to a famine, existed, and this measure was loudly called for by the public. If, under such circumstances of pressure, those who had it in their power to administer the remedy, could suffer the passions, prejudices, or interests of others, so to mislead their judgment, what have we at this time to expect from the attempt? If, after the fatal experience of more than twenty millions sterling having been sent to foreign countries for the purchase of grain, within the short period of a very few years, they can shut their eyes upon the past, and consider the present abundance as perpetual; if they can still condemn millions of acres, which

are capable of every kind of produce, to remain dreary wastes, I can impute it to little less than to a species of infatuation. The case seems to me desperate; and I may almost say of them, in the forcible language of scripture, "Neither will they be persuaded, though one rose from the dead."

The next important object that engaged the attention of the Board, was occasioned by a requisition from the House of Lords, who, in their inquiries into the means of removing the dearth of provisions, conceiving that many of the lands now under grass might be advantageously converted into tillage, applied to the Board for advice, under what regulations this change might be safely made. The Board, fully aware of the importance of the subject, and desirous of calling the public attention to it, proposed, by advertisement, to give premiums for Essays on "the best method of converting grass-land into tillage, and, after a certain time, of restoring them to grass again, with improvement, or at least without injury." This application from the Board had a great effect; no fewer than between three and four hundred essays, from all parts of the country, were transmitted. Much time and labour were spent in examining their respective merits; and to no Member of the Board were we so much indebted on that occasion, as to the Noble Duke, who is now unhappily no more.

To prevent even the possible suspicion of any improper bias, the essays were directed to be sent with marks, or mottos, and were adjudged by the Board without any knowledge of the names of the respective authors; and I have the satisfaction to say, that the principal rewards fell to those who, in the opinion of the country, stood the highest for agricultural skill and talents. The Board, in this very delicate business, rendered more difficult by the great mass of matter, and the number of claimants, had the full reward of their pains and labour: and though I am not so presumptuous as to assert, that the judgment of the Board was in every case precisely according to the merit of the author, yet I think I may affirm, that there are very few instances to the contrary; and that no measure in which the Board was ever engaged, gave greater satisfaction to the public, or produced more useful information. A part has already been published, and I flatter myself that another volume on the same subject will soon be ready.

While the Board was employed in these domestic objects of attention, it felt itself happy in becoming the medium of sending to the West Indies some of the most valuable productions of the East Indian islands, within the same climates. From Dr. Campbell, an ingenious botanist in Sumatra, they have obtained several parcels of seeds (with accounts of their nature and properties,) which, if they should succeed, may prove

most valuable acquisitions to the West India islands. They are at present on trial; but the House of Assembly in the island of Jamaica have already been so sensible of their importance, that, by an unanimous vote they have returned their thanks to your President. A gold medal, the highest honorary reward bestowed by the Board, has been sent to Dr. Campbell, and I have no doubt that further supplies and great varieties of seeds may soon be expected.

Before I conclude, I must beg leave to notice a few circumstances of our domestic concerns: And first, with regard to our publications.

I can truly say, that much the most painful and difficult part of my duty, has arisen from prejudices excited by some of the early publications under the authority of the Board. I have already stated, that these were published merely as hints and conjectures, and that the Board expressly disclaimed all responsibility as to the particular opinions advanced. It must, however, be admitted, that some of them were suffered to be printed without due examination, and that it will be our duty to expunge every exceptionable passage from the future editions. Indeed the Board has very strictly watched over their publications for the last three years; and though they are fewer in number than formerly, yet I may venture to flatter myself, that they are more correct, at least, that they contain nothing liable to the same sort of objections.

It is much to be wished that the amended reports of the Agriculture of the different counties could be completed; but a sufficient degree of agricultural knowledge is so rarely united to the power of explaining it with perspicuity and method, that notwithstanding all my endeavours, I have seldom succeeded in finding persons with sufficient ability and inclination to undertake this work. But as it is one of the greatest importance, I hope that the Members of the Board, in their respective counties, will search out for the most proper persons, and that they will also direct, encourage, and assist them in the execution.

With regard to our Finances, I must do the Noble Lord who preceded me the justice of declaring, that he left them relieved from the embarrassments to which they had formerly been subject. At present I have the satisfaction to say, that their situation is considerably improved; and yet I believe that no proper expence has been spared, but that, in all our proceedings, we have acted with a just liberality, which, with means as limited as ours, can rest only on the basis of economy. Our outgoings must necessarily be large. The two Secretaries deserve and receive considerable allowances; the other Gentlemen in the office have also just claims to the remuneration bestowed on them. We are obliged to incur a

considerable expence for rent, taxes, stationary, and office incidents. A large piece of ground at Brompton is kept in hand for experiments, with suitable persons to superintend them. Add to this, honorary rewards (which in the single case of the essays on grass-lands, amounted to upwards of four hundred pounds, in addition to the grant for that purpose from Government), the sums paid for surveying counties, for forming a collection of books in Agriculture, for purchasing models and implements; and when it appears that all this is done from a Parliamentary grant of only three thousand pounds a-year, subject to the payment of fees, and that we have now a considerable balance in hand, after having discharged all demands upon us, I think the Board cannot be denied the merit of an attentive and judicious administration of their affairs, and that their conduct may be brought as an example to others, how much may be done; with means comparatively small, when under the direction of a prudent management.

I cannot conclude without adverting to a subject which I shall always consider as matter of peculiar pride and satisfaction to every Member of this Society. I mean the uninterrupted harmony and cordiality which has on all occasions prevailed in our intercourse with each other. A Society of this nature could never be extensive enough for its purpose, not embrace all the talents most likely to render it useful, without comprehending persons who are in other respects divided by those political distinctions of party which are found always to prevail in this free country. Under the influence of these political distinctions, we have every day reason to see how difficult it is for those to act together kindly, even in the ordinary affairs of common life, who differ thus widely in their public sentiments. But, happily, in this Board, although every Gentleman that belongs to it must, from his situation and rank in the country, take a part more or less active in political discussions, yet, as if by common consent, the influence of every discordant opinion has been extinguished the moment he entered these walls. It is impossible to refer to any more striking instance of this liberal conduct, than in the person of the Noble Duke whose bust is now in our view, and whose untimely loss we all equally regret. To the happy prevalence of this general disposition I must attribute the perfect unanimity which has prevailed amongst us during the whole period to which I have alluded. No sharp, angry, or vehement debates have taken place; and I am not aware that even a single expression has ever fallen from the lips of any Member, that could wound the feelings of another.

For myself, it is impossible not to acknowledge the partiality and indulgence which first placed me in this chair, and have

since uniformly supported me in it. That persons, who by their rank, and estimation in the country, as well as by their knowledge of Agriculture, are confessed by all to be fittest for the first place (and any of whom it was my sincere wish and desire to have induced to undertake it, in preference to myself) should yet have condescended to accept from me the office of Vice-Presidents, must ever be highly gratifying to my feelings. With respect to the other Members of the Board, where I am so much indebted to all, it may not perhaps be strictly proper to mention any; but I cannot help saying, that to two of the official Members, namely, the President of the Royal Society, and the Surveyor-General of the crown lands, I am under the most particular obligations: The various and extensive abilities of these Gentlemen, have been assiduously and uniformly exerted in assisting my endeavours. It would be ungrateful to deny, that their knowledge has instructed my ignorance; their information and experience have on every occasion aided or corrected my judgment; and their vigour and activity of mind have materially diminished the difficulties which I should otherwise have had to encounter, even in my imperfect attempt, to discharge the duties of my situation.

To them, to the Vice-Presidents, and to the other Members of the Board, I once more beg leave to return my thanks. It is my most ardent wish that their labours may long be continued with equal zeal and judgment, and with increasing credit to themselves and advantage to the publick. The same kind and liberal protection which I have been fortunate enough to experience, will, I am sure, be extended to the person, whoever he may be, whom their choice may destine to be my successor. It is that, which can alone enable him to discharge with confidence and success his duty to the Board, and effectually to promote the wise ends of its Institution.

BOARD OF AGRICULTURE.

London, Tuesday, March 15, 1803.

Present :

The Right Hon. Lord Carrington, President,	
The President of the Royal Society, k. b.	Sir Geo. O. Paul, Bart.
The Earl of Egremont,	Sir Cecil Wray, Bart.
The Earl of Galloway, k. t.	John Canyars, Esq.
Lord Viscount Wentworth,	Wm. Wilberforce, Esq.
Lord Viscount Newark,	Lang. Millington, Esq.
Lord Sheffield,	Thos. Estcourt, Esq.
Sir Christ. Willoughby, Bart.	John Fane, Esq.
Sir Henry Vavalour, Bart.	The Rev. Henry Bate Dudley.

On the motion of the Earl of Egremont, seconded by Lord Viscount Newark, it was resolved unanimously, that the thanks of the Board be given to Lord Carrington the President, for

the eloquent Speech which he has just delivered from the Chair; and that he be requested to furnish the minutes of the same, to be entered amongst the proceedings of the Board, as it contains, in their opinion, a just and satisfactory illustration and defence of the views and conduct of the Board during his Lordship's Presidency

At a meeting of the Board of Agriculture,

Tuesday, April 5, 1803.

Read the minutes of the Speech of the late President.

Resolved, That this Speech be printed for the use of the Members, and that it be also inserted in the next volume of Communications.

Resolved, That the Letter now read from Lord Carrington to the President. Lord Sheffield, acknowledging the receipt of his Lordship's Letter inclosing the thanks of the Board, be inserted together with the President's Letter, in the minutes, and printed with Lord Carrington's Speech.

Board of Agriculture, March 30, 1803.

MY LORD,

It is peculiarly gratifying to me, as President of the Board of Agriculture, to have been requested to transmit to your Lordship the unanimous expression of the high sense they feel of the ability with which you presided in the chair of the Board. To use any other language than their own, would be doing an injustice to the Resolution; I have therefore the pleasure of copying it

"Resolved unanimously, on the Motion of the President of the Royal Society, seconded by the Earl of Romney, "That the thanks of this Board be given to the Right Honourable Lord Carrington, for his regular attendance on the "meetings and other business of the Board; for his able conduct in the Chair; and for his judicious management of "their affairs, particularly of the funds of the Board."

Permit me only to add, that this Resolution has my entire concurrence, and that it will be my wish to conduct myself on the same principles as those, which have enabled your Lordship to give such general satisfaction to the Board.

I have the Honour to be, with great regard,

My Lord,

Your Lordship's faithful humble Servant,
SHEFFIELD.

The Lord Carrington.

&c. &c. &c.

St. James's-place, April 4, 1803.

MY LORD,

I beg that your Lordship will present my most respectful thanks to the Board of Agriculture, for the great Honour which they have conferred upon me by their unanimous Vote.

I cannot flatter myself that I deserve this distinction; but I am nevertheless proud to have received it, as a proof of their esteem and kindness. Be pleased, My Lord, to accept my best acknowledgments for the obliging expressions, in which you mark your own concurrence with the sentiments of the Board.

I have the Honour to be,

My Lord,

Your Lordship's most obedient and faithful Servant,

CARRINGTON.

The Lord Sheffield,

President of the Board of Agriculture,

&c. &c. &c.

ON THE FAILURE OF THE APPLE CROPS, IN 1802.

To the Editor of the Agricultural Magazine.

SIR,

AFTER so many gentlemen of distinguished abilities for their knowledge in the article of orcharding, have given their opinions relative to the cause of the general failure of the Crops of Apples last year, (though in some places they have been very productive,) it may appear presumptuous in me to offer my thoughts upon it, when I attribute it to a cause quite different from any of them; but at the same time I know, that cold rains, and sharp frosts, are generally the reason of the failure of crops of fruit, to which these gentlemen attribute it.

In July last, I went to Thornton, a village nine miles west-and-by-north distant from Leicester, situate on an eminence, without the least shelter on any side from trees, and adjoining to a range of very high hills.—On account of its bleak situation, vegetation in that neighbourhood is, at least, a fortnight later at spring, than at Leicester.—There, to my great surprise, was a plentiful crop of apples, when scarcely one could be discovered in the well-sheltered gardens and orchards situate in the centre of the town of Leicester.

I instantly told my friend, to whom I was paying a visit, Mr. Fewkes, a very intelligent gentleman-farmer, to what I attributed it, that on account of the backwardness of the blossoms opening, they had escaped the general destruction which happened in those gardens and orchards, which were more forward when those fatal frosts happened. He entirely coincided with me, that that was the real cause.

From this circumstance, I should recommend to those persons who have choice of ground, to have a small orchard in a northern-situation; they then would have two chances every

year for a crop of fruit, for frosts are what it is impossible to guard against.

Palways have been particularly attached to planting fruit-trees, and in one year planted above three hundred, to form a regular fruit-garden; consisting of apricots in standards, peaches, nectarines, almonds, cherries, plumbs, apples and pears; and, as my method of planting and managing them was different from the usual ones, and attended with success, I shall, before the season of planting arrives, describe it.— My garden was at Hampton-wick, consisting of ten acres, walled in, adjoining to Bushy-park; and my plan was to form both a profitable and ornamental garden: this was in the year 1761; but it is now above twenty years since I saw it, I cannot give any account of its present state. It is only a mile from Hampton-court, Mr. Backnall's residence; and if he was inclined to go and see it, I apprehend he would find the apricot-trees in a profitable state to the owner. I planted eighty Breda and Brussels, as standards, but with stems only one foot high.

R. WESTON.

ON A NEW SPECIES OF GRAIN, CALLED SIBERIAN OR HALIDAY BARLEY.

THE Surface of the earth is clothed with a variety of grasses. Such as are intended for the use of cattle are spontaneous in the growth. Such as are intended for man require culture and attention. The grasses of the field yield a never-fading verdure. They shoot early in the spring, and continue to send forth radical leaves, which are daily cropped without injuring the plants. Animals seldom destroy the flowering stems. A variety of grass-seeds are consequently sown upon our meadows and pastures by the hand of Providence. This dislike in animals to brouze upon the straw that bears the seed, is particularly favorable to the animal grasses, and gives an useful hint to the intelligent husbandman, not to keep his grass-lands too long under the scythe.

Wheat, oats, barley, and rye are grasses* for the use of man. These vegetables are found in almost every climate. Man is a citizen of the world, and indulgent Heaven supplies him with food wherever he goes. The earth produces variety of grains. Different countries produce some kinds more luxu-

* Grasses are one of the seven natural families, into which all vegetables are distributed by Linnæus. They are defined to be plants which have very simple leaves, a joined stem, a husky Calix, termed Gluma, and a single seed. This description includes the several sorts of corn as well as grasses. In Tournefort they constitute a part of the fifteenth class, termed *Apoëlytes*; and in the Sexual System of Linnæus they are mostly contained in the second order of the third class, termed *Triandria Digynia*.

riantly than others. In the northern climates we find plenty of oats and barley. The more southern latitudes are particularly favorable to wheat. Could we look back into the remote annals of time, we should discover that few countries were originally blessed with the variety of grains and fruits which they at present enjoy. Crabs, sloes, and bramble-berries are the natural fruits of this island; and there was a time when wheat was hardly known. Oats, barley, and rye, fed the vassal and his lord.

In consequence of a liberal communication with foreigners, we have daily increased the number of vegetable productions, and have, as it were, naturalized them to our climate. I shall in this essay give an account of a new species of barley lately brought into this kingdom. As it has been made known to us by the care and attention of Mr. Haliday, I have called it by his name, as an honour due to him. Mr. Haliday, in the most correct and circumstantial manner, communicated his sentiments upon this new species, in a letter to my ingenious friend T. B. Bailey, Esq. of Hope, near Manchester, by whom I am favoured with the following extract.

—“On the 25th of May, 1767, I received about a moderate wine-glassful of this grain, from a Member of the Society of Arts, &c. at London, with this information, that a foreign nobleman had presented that Society with about a pint of it, and that it came from Siberia. Not having seen Pontoppidan's account of the Thor-barley, or Heaven's corn, I was doubtful whether it was the product of a cold or warm climate. The amazing extent of Siberia, and the low latitude of its southern bounds, created this uncertainty. I was from hence induced to divide my small quantity with a neighbouring gentleman, who had in his garden the advantage of glasses and fire. But the result of his trials shewed that it was a native of a cold rather than a warm climate. In the morning of the 26th, I sowed the other half, in drills, in a south border of my garden, each grain from four to five inches asunder. The rows were carefully weeded, hoed, and sometimes watered; but proving rank, I was obliged to support them with stakes and lines. By the latter end of August some few ears were ripened, which I snipped off. I continued this practice, morning and evening, until the first week in October, and laid the ears by in linen bags.

“In April, 1768, I rubbed out, by hand, the last year's crop, and was happy in finding the quantity was near a quart, equal, if not superior, in quality to the original seed. Having prepared all the south-borders in the garden, and part of a last year's potatoe-butt in a field adjoining, I sowed the whole in drills, as before, in the first week in May. The crops were kept clean and hoed. What grew in the garden

was snipped off as it ripened, and the butt was reaped in the common way on the 28th of August. The whole was hung up in sacks until the beginning of April, 1769, when it was thrashed out, and produced near a bushel. On the 19th and 20th, having prepared about an acre, of seven yards, pretty fine, I drew drills with a plough about ten inches apart, then a space of three feet, and so on. The grain was sown by hand, and the drills were smoothed with garden rakes. To keep the corn from falling, though, as it happened, there was no need, large beans, were dibbled in the middle of the three-foot spaces. In June, the whole was carefully hand-hoed, and on the 14th and 15th of August was reaped. The calculation I made of the produce from the traves, proved just about 36 bushels of clean corn.

"Having now got a stock, on which I could afford to make experiments of its utility in the grand points of bread and beer, I had two bushels of 35 quarts, weighing 132 lb. sent to a country mill. When ground, it yielded 80 lb. of fine flour, equal to London seconds, 40 lb. of a coarser sort, and about 12 lb. of bran, superior to wheat bran. The best flour made excellent bread, sufficiently light, and so retentive of moisture, as to be as good at twelve or fourteen days after baking, as wheaten bread on the 4th day. But, to give it the fairest trial, I had 12 lb. of the barley, and 12 lb. of wheat flour, equally fine, kneaded with some yeast, and baked in the same oven. The wheaten loaf weighed 15 lb. and the barley 18 lb.

"These trials sufficiently established its excellence as a bread-corn. The foregoing year had proved its fecundity. To find out its quality for ale, I readily accepted the offer made me by a Gentleman of Liverpool, of equal skill and attention and sent him two bushels to be malted. He obligingly took the trouble of this small quantity, and made me happy in the account he gave me of its working.

"In the latter end of January, it was brewed into a half-barrel of ale, and another of small beer. The latter was used at a month old, and proved good. The ale was tapt on the 27th of May, and proved of a fine colour, flavour, and body.*

"You have now all the particulars of my three years experience of this excellent grain. If you think the information can be of service to your farming acquaintance, you are at liberty to use it as you please, hoping, however, that my success will apologize for my enthusiasm in its favour. The idea I entertain of its superior utility to any other spring-corn,

* Dr. Lochster, in his *Dissertation de Medicamentis Norwegicæ*, extols the liquor made of it both as palatable and wholesome. Palmam, (says he,) quoque reliquis præripit decoctum hordei cœlestis, vulgo Himmelbyg, grato tam sapore quam effectu se commendans."

has induced me to make it as universally known as the narrow circle of my acquaintance would permit. I thank you for assisting my views, and am in hopes that Mr. Young will find occasion to celebrate its virtues from a more skilful, though not a more attentive cultivation.

“ On the 30th of April, I laid down, in the broad-cast way, two large acres, of eight yards, with six bushels and a half of this barley, white clover, and hay-seeds, and have sown four other bushels in a field of poor natural soil. Both fields look well. I am also happy in knowing that about 20 bushels of my last year's crop are now under skilful culture in the several counties of Kent, Surry, Essex, Middlesex, Hereford, Stafford, Chester, Derby, York, Durham, and many parts of this county; in two or three counties in Wales, six or seven in Ireland, and some in Scotland; from all which I am filled with the hopes of its soon becoming as universally esteemed as known.”

A. HUNTER.

ON TOP DRESSINGS.

SOOT, malt-dust, pigeon dung, and rape-dust, are considered as top-dressings. They are never worked into the land by the plough. In that, they essentially differ from other manures. The theory of top-dressings is not generally known; the practice, consequently, is but imperfectly understood.

When any kind of manure is worked in by the plough, we mean to lighten the soil, and at the same time to fill it with nourishing particles. But, when we apply top-dressings, we only consider the nourishment of the plants, having no regard to loosening the earth. Light, sandy, and lime-stone lands are best managed by top-dressings. Stiff loams and clays require lime and rotten dung to break the cohesion of their parts. The one remains in the ground for the benefit of succeeding crops; the other is only the food of the year. The tillage-farmer, whose soil is thin, should pay a careful attention to top-dressings. They are the soul of his husbandry. On the lime-stone lands in Yorkshire, rape-dust is chiefly used; but the price is so much advanced, that the farmer can hardly afford to purchase it. An acre of wheat land cannot be well dressed with less than four quarters of rape-dust: three quarters are sufficient for an acre of barley. The price is about eighteen shillings per quarter. To obviate this great expence, I shall recommend a compost made of shambles-blood and saw-dust, which I have found experimentally to equal, if not excel, most hand dressings. This compost has the peculiar property of being no way offensive to the smell. It comes cheap, and may be procured in every large town. I cannot

give any directions relative to the quantity necessary for dressing an acre of land. My experience upon it has been confined to a small scale.—It is speedy in its effects, but not lasting.

In Flanders, where manures are well understood, they dry and powder human ordure, which they use as a top-dressing, and find it of a rich quality. In large manufactories, and in places where a number of people live together, it may be a judicious practice to receive all excrementitious matters upon saw-dust; which, by frequently turning over, may be converted into one of the richest dressings.

In order to have a distinct idea of top-dressings, we must reflect that wheat, oats, barley, and rye, have two kinds of roots. The one is called the *seminal*, the other the *coronal* root. The first lies deep in the ground, and proceeds immediately from the grain: The other is formed just within the surface. In proportion to the vigour of this last, the crown becomes stronger or weaker; or, in other words, the plant tillers more or less. In winter corn, the plant is nourished, during the severe months, by the *seminal* root only. It should therefore be placed pretty deep, to secure it against the effects of the frost. On this account drill-wheat stands the winter better than the broad-cast. The *coronal* root seldom appears before the beginning of March. This is therefore the season for the application of top-dressings. The first shower of rain washes them just within the surface, where they become the immediate nourishment of the *coronal* root.

In most places, rape-dust is harrowed in with the winter corn; but soot is always laid on in the spring. By the application of this last, the plants soon recover the injuries of the winter, and a large crown is formed, from which a number of stalks are produced in proportion of the size of the crown.

In spring corn, the *coronal* roots form themselves within a few weeks after sowing; for which reason the top-dressings should be harrowed in with the grain.

It will be necessary to remark that, as top-dressings can only operate but a little way within the surface, they are therefore only proper for horizontal feeders; as wheat, oats, barley, and rye. Beans, and tap-rooted plants require such manures as are worked into the land by the action of the plough.

It may be objected that turnips, though tap-rooted, yet receive benefit from top-dressings; but it must be considered that they operate upon the plant by pushing it hastily into rough leaf, and thereby securing it against the fly. After this, the turnip flourishes or declines in proportion to the richness or poverty of the soil.

So much depends upon the right use of manures, that we cannot employ too much time in investigating their natures.

Notwithstanding what Mr. Tull and other ingenious gentlemen have advanced, I am clearly of opinion that manures are the life and soul of husbandry. Till the farmer can scientifically explain the manner that manures operate, he will find it impossible to reduce his profession to the standard of reason. I therefore flatter myself, that, from these essays, he will be able to collect some hints that will be of use to him in forming a just notion of one of the most important branches of agriculture.

A. HUNTER,

ON EXPERIMENTS.

EXPERIMENTS correctly made, and fairly related, form the data on which agriculture should be founded. To plan an experiment well, to trace it minutely through its progress, and to draw a just conclusion, is expected from the philosopher. And yet experiments that spring from chance more than reason, should not be neglected. The following experiments, with some short pieces of practical information, have been transmitted to me. Their authenticity and correctness sufficiently recommend them.

EXPERIMENT I. ON THE OIL-COMPOST.

By A. Hunter, M. D.

In the month of June I selected four lands, of equal goodness, in a field intended for turnips. The soil was a light sand, with a small portion of vegetable earth amongst it. It was ploughed out of sward in November, and had not borne a crop for many years. I shall distinguish my experimental lands by N° 1. 2. 3. 4.

- N° 1. was manured with rotten dung.
- 2. with oil-compost.
- 3. with lime.
- 4. was left without any dressing.

On the 20th of June they were all sown with turnip-seed, broad-cast, and during the course of the season were twice hoed.

In November I viewed the field, and made the following remarks :

- N° 1.—the best.
- 2.—the next.
- 3.—the worst.
- 4.—better than N° 3.

Here the oil-compost appears in a favourable light ; but other trials, made with equal accuracy, seems rather to prove that it is not proper for turnips, barley, or quick-growing vegetables. It requires being meliorated by the action of the atmosphere, and therefore is better adapted to winter crops,

By repeated experiments made since the publication of the first edition of this essay, I am convinced that the addition of an alkaline salt is not sufficient to alter the nature of oil, so as to make it fully capable of entering into the roots of plants in its native form: but when decomposed by the mixture of fresh dung, I am convinced that it then becomes the true pabulum of plants. The farmer considers carbone as given to "airy" nothing a local habitation and a name."

When the land happens to be stiffer than is required for turnips, it may be good husbandry to lay upon it a large quantity of lime to open its body for the free admission of the tap-root of the turnip. The lands will also be rendered more dry, without which the turnips will never arrive at any size. Farmers, in general, take great pains to pulverize their light soils intended for turnips; but they seldom plough deep enough. A turnip is found to root deep, and in all operations of husbandry we should be careful to follow the bias of nature. It is for that reason we ought to make ourselves acquainted with the size and shape of the roots of such plants as are objects of field-husbandry. When once we have obtained that necessary knowledge, it will be an easy matter to suit the preparation of the soil to the nature of the grain. It will also enable us to direct the variations of our crops upon just and rational principles.

It is abundantly evidently that all plants live upon the same food. Some require more, some less. Some take it near the surface, others take it deeper. Upon these principles we may account for the necessity of varying the crops in the old husbandry. The old drill husbandry makes all change of species unnecessary. In it all kinds of grain may be suited to the lands most proper for them. The success of that sort of husbandry, when properly conducted, proves to a demonstration that all plants are nourished by the same food. That food, I apprehend, consists chiefly of oily and mucilaginous particles.

It is of great moment to fix upon what is really the nutriment of vegetables, as it will enable us to conduct our compost dunghills upon just and rational principles. The doctrine of manures is but little understood. The farmer should at all times retain in his memory a general idea of them. He may divide manures into four kinds.

1. Such as give nourishment only; as rape-dust, soot, malt-dust, oil-compost, blood-compost, pigeon dung, and all hand-dressings.

2. Such as give nourishment, and add to the soil; as horse dung, cow's dung, human ordure, rotten animal and vegetable substances.

3. Such as open the soil, and do not nourish in their own nature; as lime, light marls, sand, and vegetable ashes.

4. Such as stiffen the soil, and at the same time nourish a little ; as clay, clay marls, and earth.

An attention to the general remarks, and a few observations upon the openness, stiffness, and depth of the different soils will enable the farmer to lay down a rational system of cultivation.

The theory of Agriculture being but little understood, it is no wonder that the practice has remained for ages, so vague and uncertain ; but I flatter myself that the time is advancing when the husbandman will vie with the gardener in the rationality of his employment.

II. ON MANURING MEADOW LANDS.

By Mr. T. Bond, of Heworth, near York.

It is a general practice for the farmers in the southern counties to manure their meadow lands at Christmas. We, on the contrary, put it on as soon as possible after the sithe. I have made a number of trials with a view to determine the merit of each respective way, and dare venture to say that it is better to manure when there is some life in the grass, than at a time when all vegetation is stopt.

The southern farmers alledge, that the volatile parts of the dung may, during that hot season, be exhaled by the sun. I grant that this objection may have some weight ; but it must be considered that rain frequently falls at that season of the year, a small quantity of which will be sufficient to wash the dung amongst the old roots of the grass, which, by shading it from the rays of the sun, enables it to preserve its vigour. This effect is the more readily accomplished, as we constantly employ a heavy bush-harrow to spread the dung equally upon the ground. By following this method, our aftermath generally becomes luxuriant. Besides, it more effectually encourages the shooting of the young grass in spring. The roots of all perennial grasses renew themselves by off-sets, and die after they have perfected their seed. The manure, when laid to the old roots, invigorates the off-sets, by keeping them warm during the winter. Lands manured after the sithe, are not so easily frozen as those which have not been dressed in that manner. This is an undoubted fact, and proves greatly in favour of the northern husbandry. After very severe winters, the young grass that should have branched out from the old roots is frequently killed. The seeds also which were shed in July being young and tender, are often destroyed. Our manner of dressing affords them a certain protection in the severest seasons. It may be objected, that dung, laid on after the sithe, may render the aftermath disagreeable to the cattle. But our farmers do not practically find that inconvenience. Could we always be sure of a shower of rain within a few days after laying on the manure, our method

would then, incontestibly, be the best ; but, even without that certainly, I find it better than the other.

III. ON A NEW KIND OF MANURE.

By A. Hunter, M. D.

All kinds of animal substances go into spontaneous putrefaction. Vegetables do the same ; but to effect their entire dissolution, a greater degree of heat is required. I do not mean in this place to treat of the various manures made use of by the farmer. It would be carrying me into a field too extensive for limited design. The first experiment contains some general remarks upon this head, which the intelligent husbandman may easily improve into a system.

The bounty granted by Parliament for the encouragement of the whale fishery, has been the means of saving an immense sum to this nation. The Dutch used formerly to monopolize the trade ; but by the wisdom of the legislature, we now enjoy a considerable share of it. In a former essay, I have endeavoured to show that train-oil made into a compost with pot-ash, makes a good succedaneum for dung. A number of experiments, made by very accurate observers, seem to establish the opinion.

When the oil has been taken from the blubber, by the action of boiling water, the remaining part is thrown into the sea. I have long lamented that no person has ever considered this fatty substance in the light of a manure. It is an animal body, and beyond all doubt, capable of being reduced, by putrefaction, into a rich food for vegetables. The only thing that remains, is to direct the farmer in the manner of its application.

In September, 1770, I collected about a ton of it, which I mixed into a heap with four loads of fresh horse dung. This spring I propose to mix it up with a proportionable quantity of such materials as are usually collected for forming a compost dung-hill, and I flatter myself that it will prove a rich and cheap compost. I do not take upon me to say that this is the best method of using the whale flesh. It will give me pleasure to hear that others have applied it differently, being well assured that perfection can only be attained by the concurring assistance of many. I boast of no other merit beyond giving the original hint. There was a time when the richest manures, produced in cities and large towns, were either conveyed into the sea, or thrown into rivers. We have now the satisfaction to see that method universally condemned.

In order to encourage the farmer to seek after the refuse of train oil, I might observe that no manure has hitherto been found of a richer quality than the putrid offal of fish. In some parts of Cornwall they manure their lands with pilchards

in a plentiful season, and find that no manure equals them in richness.

It is allowed on all hands, that putrid vegetables make good manure; but it should be remembered, that animal bodies, when reduced into the same state, act more powerfully, and preserve the land much longer in strength and vigour.

We cannot pay too much attention to every thing that relates to manures; without their assistance the richest soils would soon be reduced, by frequent cropping, to a barren state. It is pleasing to observe how the dissolution of one body is necessary for the life and increase of another. All nature is in motion. In consequence of the putrid fermentation that is every where carried on, a quantity of vegetable nutriment ascends into the atmosphere. Summer showers return much of it again; but part falls into the sea, and is lost. To this we may add the animal and vegetable substances consumed on board of ships, all of which are buried in the ocean. The industry of man restores them again, but in a different form; and we may presume that the fish taken from the sea, leave a balance in favour of mankind. Thus Providence, with the most consummate wisdom, keeps up the necessary rotation of things.

IV. ON THE OIL-COMPOST.

By Mr. Roebuck, gardener, in York.

In the month of May I planted twelve alleys, that lay between my asparagus beds, with cauliflower plants. Each alley took up about thirty plants. One of the alleys I set apart for an experiment with the oil-compost, which was prepared according to the directions given in the first volume of the Georgical Essays.

About a handful of the compost was put to the root of each cauliflower plant. In all other respects the alley was managed like the rest. The plants in general flowered very well; but those to which I applied the compost, sprung up hastily with small stalks, and produced very poor flowers.

I imputed this unfavourable appearance to the freshness of the compost, which was only a few weeks old. In all future trials, I shall expose it to the action of the air, in order to abate the heat, and neutralize the acrimony of the salt.

In the September following this unsuccessful experiment, I planted the same alleys with early cabbages. The necessity of meliorating the compost, was in this trial fully confirmed. For the cabbages that grew upon the alley, which in May had received the compost, were larger, and in all respects finer, than the others.

The idea that I entertain of the compost is that, when meliorated in the earth, it is capable of giving a richness and

freshness to it. Upon this principle I would recommend it to gardeners as a subject worthy of further trials.

V. ON SIBERIAN SPRING WHEAT.

By M. Dodsworth, Esq. of Craike Hall.

On the 14th or April, 1770, I sowed three bushels and a half of the Siberian Spring-wheat on an acre, and reaped it with the first wheat in the neighbourhood. I had thirty stooks, which yielded above three pecks per stook. The wheat weighed four stone six pounds per bushel.

VI. ON THE HOWARD, OR LARGE BEDFORDSHIRE POTATOE.

By T. B. Bayley, Esq. of Hope

By all the experiments that have been made, the Howard Potatoe is found to produce the largest crop. On that account they are chiefly used in feeding of cattle. In two beds, four feet wide, and two hundred feet long, I planted in a common field a sufficient number of sets of this kind of potatoe, and managed them by the horse-hoe. The produce was sixty-four bushels, each bushel, up-heaped, weighing about 70 lb. My cattle eat them boiled, with as much eagerness as the best sorts, and came on as well with them. I have built a boiling house, &c. on Mr. Young's plan, and during this whole winter have boiled potatoes for my cattle. For the fattening ones, I mix ground oats with them; and for the milk cows, malt-dust; and dare venture to affirm that they are much more profitable than either turnips or cabbages. Once, when my potatoes grew low, I desisted giving them to the milking cows. Immediately, though fed with the best hay, they fell off amazingly in their milk. I therefore began again, and in a week's time they gave better than one-third more butter. I own this accidental discovery gave me much satisfaction, as it confirmed my opinion, that potatoes boiled are an excellent winter food for cattle. Their culture is not so difficult, at least not so precarious, as either turnips or cabbages.

Their value is superior, and there is no risk of their giving a disagreeable taste either to butter or milk. Add to this the vast increase of the Howard potatoe, and its equality with the best sorts when used for cattle.

T. B. B.

ENUMERATION OF PATENTS LATELY ENROLLED.

1803. **B**ARKER CHIFNEY, of London, gentleman;
March 8. for improvements in the manufacturing and preparing roofing slates, and in laying the same.

10. James Bennet, of Oldham-street, Manchester, Lancashire, manufacturer; for a method of felting wollen-cloth, and also of felting cloth manufactured of sheep's wool, and other combined materials.

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March 16. Samuel Miller, of the parish of St. Pancras, Middlesex, Engineer; for his improved method of applying the repelling or repulsive force of nature, in order to give a stronger impulse to any substance or body in motion, as well as to destroy the bad effects of its baneful activity.

— **21.** Edward Shorter, of New Crane, Wapping, Middlesex, Mechanic; for an apparatus for working of pumps.

— **23.** Robert Clark, of Fitzroy-place, Middlesex, instrument Maker; for improvements in the construction of a truss, to be worn in the case of rupture.

— **23.** Deers Egg, of the parish of St. Martin's in the Fields, Middlesex, Gun-maker; for improvements upon fire-arms.

CRITICAL CATALOGUE.

- I.** *General View of the Agriculture of the County of Peebles, with various Suggestions as to the means both of the local and general Improvement of Agriculture.* By the Rev. Mr. Charles Findlater, Minister of the Parish of Newlands, in the County of Peebles, with a Map of the County, and other Engravings, 8vo. 483 pages.

IN the introduction prefixed to this work the author enumerates the causes which have retarded the advance towards a perfect theory of agriculture, and proceeds to state what is the established practice as to tillage, the alternation of crops, and recruiting the fertility of the soil.

He then commences his survey; in which, for the sake of uniformity and facility of reference, he has adopted the system prescribed by the Board of Agriculture.

We shall endeavour to follow him through it as closely as our limits will allow, and shall be careful to mark such parts as appear to deserve the notice and attention of the practical farmer.

Peeblesshire, or Tweed-dale, is about 30 miles in length, and 22 in its greatest breadth, and contains nearly 230,000 English acres. Its medium elevation is 1150 feet above the level of the sea, which, together with its northerly latitude (55° N.) renders the seasons backward, and the climate severe. Natural grass is not cut before the middle of August, and the harvest is reckoned early when the whole is got into stack before the end of October.

From the same causes frosts destructive to vegetation are frequently experienced, and even in the month of July, the crops of bigg or beer have sometimes been completely cut off by them.

By far the greater part of this county never was, and probably never will be ploughed. Of the lands under culture there is a great variety of soil, as moss, clay, sand, and the same mixed in every variety of proportion. The county is almost destitute of wood, but has quarries of free-stone, whin-stone, lime-stone, and coal in abundance. The Tweed whence this county receives its appellation is its principal river.

Notwithstanding, the author asserts, that great improvements have been made, and that the situation of every rank is greatly

altered for the better, his description of the Scottish cottages will give the English reader no very favourable ideas of the accommodations of the lower classes in the sister kingdom.

"The general description," he says, "of the cottage of a labourer or tradesman, who keeps a cow, is, a house of 18 or 20 feet by 15 or 16, within walls; the door is in front, close by one of the gables; two close beds form the cross partition, dividing the space occupied by the family from a space of four feet from the gable at which you enter; where stands the cow behind one of the beds, with her tail to the door of the house. There is one window in front near the fire gable, opposite to which, at the opposite wall, stand the *ambry*, or shelved wooden press, in which the cow's milk, and other family daily provision are locked up; and, above it, lying against the slant of the roof, is the *skelf*, or frame, containing shelves, with cross bars in front, to prevent the utensils set upon its shelves from tumbling off from its overhanging position; the show of the house depending much upon the quality and arrangement of the crockery and other utensils placed thus, in open view, upon the skelf. A chest, containing the family wardrobe, stands in front of one of the close beds, serving also for seats. The close beds are also furnished with a shelf at head and foot, upon which part of the family apparel is deposited, to preserve it from the dust. A wooden armed chair for the husband, when he arrives fatigued from his labour, and a few stools for the rest of the family, and a plunge churn, completes the inventory of household furniture; to which only a small barrel for salted flesh, and another for meal, may be added, if the family can afford to lay in stores, and are not from hand to mouth."

Their cooking utensils are confined to a small iron-pot and a girdle or iron-plate for baking their oat-cakes. If to the above be added a barrel to hold salt, a pail, and two or three vessels for milk, we have a complete inventory of the effects of a Scotch labourer.

The author enters at considerable length into the management of farms. These are divided into sheep pasture and arable farms. Besides the sale of the sheep themselves, wool is likewise an article of sale from all the sheep-farms. Some of it goes to Stirling, a greater quantity to Hawick, but the greatest part to Yorkshire for serges, shalloons, carpets and coarse cloths. Sheep's milk cheese is also sold from a few of these farms, and several young black cattle, and young horses, but in none to any great extent. The same may be said of the produce of the dairy and of corn.

The author suggests, that it would be a most effectual mode of improvement to enclose the arable parts of the sheep farms in this county with stone walls. They at present lie uninclosed, and hedges, he says, would be incapable of turning Tweed-dale sheep.

Of the arable farms, although not depending on sheep, but tillage, there are few that do not keep some sheep of the fine woolled English breeds. These farms are not near so extensive as the sheep farms. The principal staple articles of their produce are butter and cheese, which, on account of the vicinity of Edinburgh, never fail to find a ready market.

The usual duration of leases in this county is only nineteen years; some have lately been granted for a longer term, even 57 years, and

to the exertions that have ensued upon this security the author attributes the very important improvements that have recently been made in the agriculture of Tweed-dale.

From the author's account of the agricultural implements in use here, we shall take the liberty of making an extract or two.

"A *draining plough* of his own invention has been successfully used by Mr. Sanderson, upon his small sheep farm, which he rents near the village of Linton. It is drawn by six horses; and by means of one coulter descending to the left from the beam, and another coulter (or wing like the cutting wing of a peat-spade,) rising up to the right from the sock, it cuts and clears out, at once, a drain of two feet by eighteen inches. It might be of great use in many sheep farms, in draining soft boggy lands, where its operation would not be obstructed by stones.

"*Fanners*, a winnowing machine, said to be an invention of Papin, a Dutchman, are universally used through Scotland; it is believed to be but of late, if this machine is, as yet, so universal in England. No farmer in Tweed-dale, renting to the extent of 20*l*. or even less, is unprovided of fanners. The machine, even under the late dearth of wood, costs not above 2*l*. 10*s*. Its principle is, the whirling round, with great velocity, four flat boards or vanes fixed to an axis within a wooden frame, by means of a handle and multiplying wheels. The current of air thus generated, is confined by the frame, which covers the vanes all round, with an exception of an opening for admitting air, and directs the current to the further end of the frame, which is open. Meanwhile, from a hopper fixed upon the top of the frame with a loose bottom, (which is agitated by the motion of the machine,) the grain falls down through the frame, before the current of air; the chaff is blown out at the further end of the frame; the lighter grain goes over a partition into a receptacle; and the heavy grain, which the wind cannot force over the partition, falls nearly perpendicular into the bottom of the frame, whence it is discharged by an aperture for the purpose.

"The number of fanners in Tweed-dale is nearly 350; they are now an appendage of all the thrashing-machines.

"*Thrashing-Mills*.—The number of these, as already observed, has greatly increased, amounting at present to 18 going by water, and 24 driven by two horses each. Though the arrangement of machinery can render the smallest power equal to the overcoming of the greatest resistance, by multiplying proportionally the velocity of the agent's motion, over that to be ultimately communicated to the patient; yet, where a given resistance is to be overcome, and a given velocity is at the same time to be preserved, no such aid can be derived from mechanical contrivance; but a strong acting force is indispensably necessary. Such is the case in the thrashing-mill; in regard to which, the moving power can probably admit of little aid from contrivance, excepting merely what may be given it by the diminution of friction.

"The speedy diffusion of such an expensive machine, in such a poor county as Tweed-dale, to the difference of from thirteen to forty-four in the space of three years, may be justly held as a decisive proof of the great utility of the invention. The extent of yield of grain,

from this mode of thrashing, above what is procured from thrashing by flails, I have understood, from those well acquainted with the subject, to amount to the odds of one in twenty; and that the wages of the labourers required to assist, when the machine is at work, amount to no more than what would have been necessary to merely winnow by the fanners the quantity of grain made entirely fit for market by this operation of the machine; and that, upon a farm of any considerable extent, the amount of this saving of hand-labour would readily repay the whole of the capital sunk upon the machine, in the space of three years.

The only effectual method of inclosure in this county is by stone dikes. A thorn hedge, the author states, is absolutely incapable of turning Tweed-dale sheep, and "more money has been unprofitably thrown away in attempting to make fences of thorn hedge than upon any other abortive attempt at improvement."

In a country abounding with moss like Scotland, the application of that substance to the purpose of manure cannot fail to be attended with considerable advantage. The author gives the following account of preparing it for that use:

"Let a row of cart loads of new made dung be laid out along the crown of a dry ridge, on which the midden is to be formed, close to one another: let two rows of moss be then deposited, one on each side of the row of dung. The midden is then thus formed: the workman begins at one end of the rows; he throws forward so much from the rows of moss as shall make a bottom of six inches thick; he then throws, upon this bottom, dung, from the dung row, to cover it ten inches thick; then, above this, six inches of moss; then four or five of dung; then six more of moss; then a thin layer of dung: he then covers the outward end, and the two sides, with moss, and lays on moss a top till it is raised to the height of four feet, or four and a half. Having thus completed this part, he proceeds, as before, till the whole is formed. Ashes of coal, peat, or wood, should then be spread over the top of the midden, at the rate of about one cart load to twenty-eight carts of compost; or, if these are not to be had, about half the quantity of finely powdered slacked lime.

"The moss used should be thrown out of the moss-pits weeks or months before being deposited for the midden; that, by draining and drying, it may not check the fermentation intended to be produced, through its excess of pressure, or of moisture. Care must be taken, for the same reason, not to set a foot upon the compost when making up. And if the dung used has little litter in it, fresh weeds, potatoe shaws, &c. or even sawings of timber, must be added in making the compost, to keep it open.

"In mild weather, seven carts of common farm dung is sufficient for twenty-one of moss. In proportion to the cold, more dung is necessary for proper fermentation. In Summer the fermentation may come on in ten days, or sooner; it is apt to exceed, and to fire the materials; a stick should be kept in it, to try the heat; and if it arises to near blood heat, it should either be watered, or turned over, when fresh moss may also be added. It should thus remain untouched till three weeks before using; when it should be all turned over, upside down, and inside out. This compost is equal, weight for

weight, to the best dung. When the moss is used raw, it should be laid upon the midden lumpy, to admit air.

The population of Peebles, according to the returns made in pursuance of the act of 1801, amounts to 8802 individuals, being at the rate of 24 to the square mile.

Among the obstacles to improvement in this county the author mentions the deficiency of capital, popular prejudices, poorness of the soil, but particularly the want of proper modes of storing up grain so as to preserve it from natural decay, and from the destruction of vermin. The prohibition of the exportation of wool, and bad roads, are likewise mentioned as tending to produce the same effect. To these may be added the total want of institutions for disseminating agricultural knowledge.

A considerable portion towards the conclusion of this volume is occupied with notes on various particulars treated of in the preceding report. These relate principally to speculative and theoretical subjects, and are therefore not calculated to afford much information to the practical farmer.

They are succeeded by an appendix consisting of two parts. The first is an account of Whim, the seat of Sir James Montgomery, Bart. of Stanhope, late Lord Chief Baron of his Majesty's Court of Exchequer, with some observations upon the culture of flow-moss and of ploughable moss, from information communicated by him to the author.

The second part is an essay on the diseases of sheep, drawn up from communications furnished by Dr. Gillespie of Edinburgh, together with hints by Dr. Coventry, Professor of Agriculture at the University of that city. Each disease is here briefly and simply treated of, and a method of cure prescribed, which we intend laying before our readers in our next number.

II. *Allgemeine Geschichte der Obstcultur von den Zeiten der Urwelt an &c.* General History of the cultivation of Fruit-trees from the earliest ages to the present time, vol. I. containing the History from the earliest ages to Constantine the Great: with 3 plates, by Dr. Fr. Karl Ludw. Sackler 8vo. 507 pages.

The worthy Author of this work had long conceived the design of giving a systematic description of the fruits known to the ancients, of the nations that had principally cultivated them, of the channels by which their culture was introduced into Germany, and of the persons who have particularly distinguished themselves in this way. A most extensive knowledge of Antiquity furnished the materials for this undertaking, of which this first volume affords incontestible evidence, it brings the History down to the time of Constantine. It is divided into the following general heads:

1. The primitive stock of all fruit-trees originated in the countries surrounding the Caspian Sea, in Asia Minor, Syria, Phenicia and Palestine. The Phenicians and Phœceans, and more particularly the Greeks and Romans, introduced these kinds into the other cultivated countries. None of the fruit-trees was originally a native of Europe, and none as far as we can learn from History, has been brought us from Africa or America.

2. Fruit-trees are natives of only those countries of Asia, situated between the 36th and 53d. degree of Latitude, and it is only the same

climate and the same Latitude that have been favorable to the culture of fruit-trees in Europe.

3. The primitive species have varied more and more with time. Only three kinds of pears were known at the time of Aristotle and Theophrastes; at the time of Cato there were seven, and at the time of Pliny and Columella 56. The other fruit-trees present similar phenomena to those of the pear-tree. Their varieties are either multiplied by the culture of the species itself, or by engrafting. The different varieties of the same species were combined together and formed sub-varieties.

We are astonished to see in the curious and learned explanation, which the Author gives of the various methods of cultivating the earth in different ages, how very much they differ from the present practice. Almost all the methods of engrafting were known to the ancients, but unfortunately they give us but few details on the formation of varieties.

The Author in his work gives complete extracts of the ancient classics that treat of these subjects, and at the same time enumerates the species and varieties known at each period of History. It is from these investigations that he has attempted to form a chart, on which are expressed by signs the fruits and the different routes, by which fruit-trees were diffused over the earth till the time of Constantine. It is obvious that from our imperfect knowledge, this chart cannot always be complete nor founded on perfectly accurate data, and that the learned Author has sometimes been obliged to have recourse to probability and to comparative reasoning; but he has not made an improper use of conjectures. It is certain for example that the olive and fig-tree, according to Strabo, were brought by the Phœceans from Asia Minor to the South of France, and that according to Pliny the cherry-tree was carried from Pontus to Italy, into Gaul, and from thence at the time of Lucullus into England. It is certain likewise that the vine, the fig, the pear and the apple-tree were brought by Helico to Switzerland; that the Roman armies carried the fig-tree from Carthage to Rome, that the quince came from Crete to Italy; that Papinius transported the plum and peach-tree from Africa to Italy, &c. All these are historic facts; but the vicinity of the places where the different species had their origin, the rivers which run through those parts, the character of the people which inhabit them furnish less precise data for the History of transplantation. Yet it is only from such like that the Author ingeniously concludes, that the fig-tree was carried from Tyre and Sidon to Carthage, and thence passed into Italy; and that the peach-tree was introduced into the same country from Egypt so late as the time of Cato. The chart indicates, the probable situation of the garden of Eden, of Mount Ararat, where Noah planted the first vine, and traces Hercules route to the garden of the Hesperides. It likewise shews the origin of the different fruit-trees. The author, for example, places the apple, the pear, the cherry, the nut in Pontus; the plum in Syria; the vine in Albania; the quince in Crete; the peach in Persia and Egypt; the apricot in Armenia; the fig, the mulberry and pomegranate in Palestine and other places; the citron in Media; the olive and walnut near the Caspian Sea; the raspberry, cherry, the medlar in the vicinity of Mount Ida; the

service tree in Asia Minor; the almond in Idumea, and the chefnut in the environs of Sardes. On the same chart we find the probable situation of the gardens of Alcinous, Cato, Columella, Lucullus, Laertes, Midas, Pliny, Palladius, Seneca, Semiramis and Varro. An explanatory table points out the passages in the work in which are contained the proofs which the author adduces in support of these opinions.

Our limits will not allow us to enter into farther details on this work; but we believe we have said sufficient to prove with what success the author has opened a fresh route in treating of a subject hitherto untouched. The author, M. Sickler, who is very young, possesses a very extensive knowledge of languages, antiquities, natural history and the arts, and there is every reason to believe that his future productions will be equal in merit to that here announced.

HISTORY.

National Transactions.

GREAT BRITAIN.

AFTER a short respite of two years, this country is again plunged into a state of warfare. On Monday, May 16 his Majesty's Ministers brought down a Message to the two houses of Parliament, to the following effect:

“GEORGE R.

His Majesty thinks it proper to acquaint the House of Commons, that the discussions which he announced to them in his Message of the 8th of March last, as then subsisting between his Majesty and the French Government, have been terminated; that the conduct of the French government has obliged his Majesty to recall his Ambassador from Paris, and that the Ambassador from the French Republic has left London. His Majesty has given directions for laying before the House of Commons, with as little delay as possible, copies of such papers as will afford the fullest information to his Parliament at this important conjuncture.

“It is a consolation to his Majesty, to reflect that no endeavours have been wanting on his part, to preserve to his subjects the blessings of peace, but under the circumstances which have occurred to disappoint his just expectations, his Majesty relies with confidence on the zeal and public spirit of his faithful Commons, and on the exertions of his brave and loyal subjects to support him in his determination to employ the power and resources of the nation in opposing the spirit of ambition and encroachment which at present actuates the Councils of France, in upholding the dignity of his Crown, and in asserting and maintaining the rights and interests of his people.”

On the same day letters of Marque and Reprisal, against the ships, goods, and subjects of the French Republic were issued.

On Wednesday the 18th, the papers relative to the negotiation between this country and France, were laid before Parliament. They contain a great mass of matter, the most interesting, perhaps, that was ever submitted to the people of this country, and the perusal of them can excite but one sentiment in the minds of every man attached to the honour and interests of his country; a sentiment of regret, but at the same time of indignation, against the unjust proceedings of the government of France.

Of these papers, our limits will only permit us very briefly to state the substance, as far as relates to the subjects of dispute between the two nations. The first complaints, it appears, proceeded from the French government; the subjects of them were: the newspapers, the French Emigrant Princes and others, and to these was afterwards added, the non-evacuation of the island of Malta. The First Consul directed his Minister here to solicit the suppression of the writings which he considered injurious to his character and government, at least in such French publications as were printed in England; that the bishops of Arras, St. Polde, Leon, and the French Princes, should be sent out of the country, and that other emigrants in the British dominions should be prevented from wearing orders and decorations belonging to the ancient government of France. In a subsequent dispatch in August last, he finally demands the evacuation of Malta.

On the part of the British government, the subjects of complaint may be arranged under the following heads: 1. the violation of the independence of Switzerland; 2. the occupation of Holland by the French troops, contrary to the express stipulations of the treaty of Amiens; 3. the spirit of aggrandisement and unbounded ambition manifested by the French government in the occupation of Piedmont, Parma, Placentia, the project of possessing itself of Louisiana, and in the meditated partition of the Turkish empire.

No. 38 of this correspondence is particularly interesting. It contains the substance of an interview which Lord Whitworth had with the First Consul, in which, after expatiating for two hours on the various provocations he pretended to have received from this country, he professed his fixed determination, in case of war, to attempt an invasion of this country, and that, however dangerous and fatal such an expedition might prove to himself, and those who accompanied him, "army after army would yet be found for the enterprise."

On the 6th of May, Lord Whitworth communicated to the French government, the ultimatum of the British court, containing the following demands.

1. That his Britannic Majesty should retain his troops at Malta for ten years.
2. That the Island of Lampedosa should be ceded to him in full possession.
3. That the French troops should evacuate Holland.

As the Consular court did not think proper to comply with these demands, Lord Whitworth according to the orders he had received, closed his mission and returned to London. The French Ambassador to the British court returned about the same time to Paris.

His Majesty's Declaration issued in consequence of these circumstances, contains a temperate, dignified, and perspicuous detail of the facts which have led to the present crisis. It begins with contrasting the open, friendly, and liberal conduct of the British government, with the violent and unjust proceedings of that of France, with regard to British Commerce, and the neglect with which the representations of his Majesty's Ministers to the French government on this head, had been treated. It next adverts to the conduct of that government in sending over Commercial Commissioners to this country, and the actual discovery that several of them were furnished with instructions to obtain the soundings of the harbours, and to procure military surveys of the places where it was intended they should reside. The transactions of the Continent are then alluded to from a review of which "it may indeed with truth be asserted, that the period, which has elapsed since the conclusion on the Definitive Treaty, has been marked with one continued series of aggression, violence, and insult on the part of the French government."

The reasons for not evacuating Malta, under the circumstances that have

occurred since the signing of the Treaty, are stated at considerable length, and must be perfectly satisfactory to every unprejudiced person.

The mission of Sebastiani—the communication of the First Consul to the Legislative Body, in which he asserts that Great Britain cannot singly contend against the power of France—the intemperate and indecent conduct of Bonaparte to his Majesty's Ambassador, in presence of the Ministers and Ambassadors of most of the states of Europe—the publication of a most gross and opprobrious libel against his Majesty, in a Hamburg paper, by the express command of the French government, by which the independence of that town had been violated—all these subjects are noticed in a proper manner, and are justly described as forming "a part of a system which has been adopted for the purpose of degrading, vilifying, and insulting his Majesty and his government."

Unable to obtain redress and satisfaction for all these insults and provocations, the declaration farther states, that his Majesty had ordered his Ambassador to leave Paris—that he is still willing, as far as is consistent with his own honour, and the interests of his people, to afford every facility to any just and honourable arrangement, by which the calamities of war might be averted, at the same time that he is determined to obstruct the further progress of a system, which, if not resisted, may prove fatal to every part of the civilized world."

On Monday, May 23, the day appointed for taking his Majesty's message into consideration, in the House of Peers Lord Pelham rose, and after a few preliminary observations, proceeded to a detailed exposition of the most material parts of the papers which had been laid before the House, and observed, that the real question then at issue was, whether those papers furnished proofs, that there existed in the late transactions with the French government a just cause for war. He laid particular stress on the attempts made by that government to interfere in the internal concerns of this country, their complaints of the freedom of publication and debate, which went to affect the essential part of its freedom the liberty of the press. His Lordship concluded a veritable speech, with moving an address (which as usual, was an echo of the Message) and stating that the House of Lords felt itself called upon readily to concur in the measures best calculated to call forth the spirit and resources of the British nation in support of the honour and dignity of his Majesty's Crown, the rights and liberties of his people, as well as every other consideration which can be dear to them as a free and independent nation.

An amendment to the address was moved by Lord King, the object of which was, "To assure his Majesty that the House would support his Majesty in every just arrangement that his Majesty might be graciously pleased to make for the preservation of Peace."

Upon the division on this amendment, there appeared for it 18—against it 142. The original question was then put and carried.

The debate on the same day on this subject in the House of Commons, was by a new arrangement in the admission of strangers into the House, entirely lost to the public. Mr Pitt, it is stated, delivered one of the most nervous, eloquent, and impressive speeches ever heard in that House, calculated to excite in the people of this country union, spirit, and exertion, at the same time; not disguising or lessening the difficulties we have to encounter and the serious sacrifices we must make in the prosecution of the war, upon which we are now entered.

An address similar to that in the Lords was moved, and the conclusion of the debate was adjourned till the following day. Mr. Fox appeared as a strenuous advocate for the maintenance of peace, and did not think that we had as yet sufficient grounds for the commencement of hostilities. An amendment of the same nature as Lord King's in the House of Peers, was made by Mr. Grey, which was negatived by a majority of 331, there being for the original motion 398—against it 67.

Hostilities will now doubtless commence with activity and vigour. The most active preparations are now making in all our ports, and every endeavour will assuredly be exerted to repress the restless and unbounded ambition of France. Admiral Cornwallis has left L'orbey with ten sail of the line, probably for the purpose of blockading the port of Brest. The mouths of the Meuse and Helveotfluy are closely watched by Admiral Thornborough. Lord Keith is to have the command in the north Seas, and Lord Nelson in the Mediterranean. Our military keep pace with our naval preparations. Forty thousand Militia are now embodied, and thirty thousand more will be embodied in very short time. A camp is to be formed near Colchester.

FRANCE.—The subjects of dispute between Great Britain and the French Republic, have been treated of sufficiently at length in a preceding article.

A statement of the negociation since the date of the King's Message was, communicated to the Conservative Senate on the 14th of May, and a committee was appointed to present an address of thanks to the First Consul, in which the Senate expresses its impatience to give to France a mark of gratitude, should there be peace, and one of devotion, should the national dignity require war. A similar communication was made to the legislative body and Tribune, and similar addresses of thanks were unanimously voted. The Deputation appointed by the Senate waited on the 15th on the First Consul, at St. Cloud, with the address.

On the 20th, a Message was delivered from the First Consul on the subject, to the Senate, the Legislative Body, and the Tribune.

Ten thousand more French troops are stated to be on their march to Nineguen, which is now the French head quarters in the Batavian Republic. The most oppressive requisitions are made by the French Generals in that unfortunate country, where the number of French troops already amount to 30,000, and which it is said are to be increased to 80,000. Another French army is also collecting between Nineguen and Cleves, which is to be composed of 24,000 men.

From the French dependencies in Italy, accounts mention that an army consisting of French and Italian troops is assembling on the frontiers of the Papal States.

It is reported in Switzerland, that several corps of French troops are to march through that country. General Lecourbe is shortly expected there, having been appointed Inspector General of the French Infantry in Switzerland.

A treaty, offensive and defensive is asserted to have been concluded between France and Spain, by virtue of which both these powers bind themselves to lend each other mutual assistance in case either Power should be involved in a war.

PRUSSIA.—The King of Prussia in conjunction with Austria and Prussia, has declared his resolution to preserve the strictest neutrality in the approaching war. Prussia has denied the intention attributed to her, of occupying Hanover, and shutting up the Elbe and Weser, against the Commerce of England, and his Majesty declares that he will preserve the free navigation of those rivers, and the independence and neutrality of Hanover. Communications to this effect were received by the Regency of that Electorate, and transmitted to London.

SWEDEN.—A misunderstanding has arisen between this country and Russia, respecting these territorial boundaries. A force of 80,000 men has been ordered to march towards Finland, by the Emperor Alexander, and a fleet of galleys is fitting out to act along the coast, yet we cannot think that this dispute will lead to hostilities. Whatever may be the spirit of the Swedish government, it can never risk a war against the vast power of Russia. The Emperor Alexander's conduct in this instance, is said to have been caused by some imperious proceedings on the part of his Swedish Majesty, in ordering his troops to take possession of a bridge situated on the confines of Russia and

Swedish Finland, and in refusing a passage through his dominions to persons provided with Russian passports.

RUSSIA.—The Emperor has taken, for his own account, and caused to be fitted out, one of the two ships which the Russian-American Company purchased in London, and which are destined for a voyage round the world. These vessels are provided with every thing, from the munificence of his Majesty, which can contribute to ensure success to the undertaking. Several learned men, as well natives as foreigners, will accompany our navigators; and all the necessary instruments have been procured from London. The present Counsellor of State, Rezanof, goes to Japan as Minister-plénipotentary, and several officers of reputation will also embark on board these vessels, which are to set sail in the beginning of July at farthest.

All the Russian harbours are shortly to be improved, under the inspection of the English Architect, Cameron, who has been long in the Russian service.

TURKEY.—The Porte has received intelligence by several Couriers, that an unexpected and very singular Revolution has taken place in Arabia. A certain Abdul Wechab is at the head of it. He has contrived to procure himself numerous adherents among the inhabitants of the territory of Mecca to the interior of that extensive country. He has enticed them by his fanatical doctrines; and joined a great number of wandering Arabs to his party. His tenets are directed against the present religion of Arabia and Turkey. He declares that the Mahometans are only a sect of villains, the enemies of God and Man; that the Sultan, who resides at Constantinople, has usurped the holy and divine dignity of a Supreme Calif; that every-one without distinction, or compassion, who professes the faith of this Calif, may be legally massacred; a Calif who is opposed by the sacred doctrines of Aly; and that lastly, it is necessary to penetrate to Mecca and Medina, to take possession of those cities. The massacre prescribed by the new doctrines of Abdul Wechab, has already commenced with incredible fury, and the adherents of Mahomet are flying in all directions. The army of the sanguinary Chief of these fanatics is advancing, with rapid and vigorous strides, towards Mecca; and the Porte is expecting further particulars respecting this sudden and alarming revolution.

Subsequent accounts state, that the rebel Chief has defeated the troops of the Grand Seignior, and taken possession of the cities of Mecca and Medina.

Agriculture.

A GREAT number of lambs has been lost in the southern Counties, owing, it is supposed, to the great dryness of the season, which renders the food for the ewes on the Downs remarkably scanty, and unproductive of milk for their young.

The late cold weather has given a severe check to vegetation, and should it continue much longer, we fear will prove injurious to the apple blossom. The frost has been so powerful as to produce ice as thick as a half-crown piece.

The early standard fruit-trees, in exposed situations, have been prematurely stripped of all their blossoms, by the late prevailing south-west winds.

The wall-fruit, we are informed, has in some situations, also suffered much from the late frosts and high winds.

It is with pleasure we learn, however, that the apple and cherry orchards, throughout the country, are in general, of uncommon fine promise, and that the blossoms has not, to any extent of moment, been affected by the high winds.

The price of pigs in general has felt a very great depression at all the late provincial fairs; and there is now a prospect of the price of that very useful article of food soon reaching its proper level; but we trust this will not deter

any persons encouraging the breed of these useful animals; for while butchers' meat in general continues at the enormous price it is now at, it is the duty of every friend to the middling and lower classes of the community, to lessen the consumption of it as much as possible, and for this purpose there cannot be any better substitute than pork.

Premiums on a Plan different from that followed in former years.

With a view to the more General Encouragement of the Culture of Flax and Hemp, and the Saving of Seed.

Trustees Office, Edinburgh, March 16th, 1803.

The Commissioners and Trustees for Fisheries, Manufactures, and Improvements in Scotland, do hereby offer the under-mentioned premiums for promoting the cultivating of Flax and Hemp, and the saving of Seed, for the year 1803, viz.

Flax and Hemp.

To be distributed in general throughout Scotland, equally, according to the claims that shall be made, in terms of the following regulations, a sum not to exceed one Thousand eight Hundred Pounds Sterling.

The rate of Premium not to exceed nine-pence per Stone.

And to be paid for every Avoirdupois weight, clean skutched, and fit for the heckle; but to be allowed to the extent of twenty stones only for each acre, and no claim to be admitted from any person sowing less than two acres.

Seed.

To be distributed in general throughout Scotland, equally, according to the claims that shall be made, agreeably to the following regulations; a sum not to exceed three Hundred and thirty Pounds Sterling.

The rate of Premium not to exceed one Shilling per Peck.

And to be paid for every peck fit for sowing, to the extent of twenty pecks only for each acre.—But no claim to be admitted from any person sowing less than two acres, as above;—It being understood that the seed may be saved either by stacking, or, without stacking up the flax during the winter, as the proprietors shall judge best; and in case, that the seed shall be cleaned and ready for the inspection of the surveyors by the 1st of March, and shall remain in that state till the 20th of the same month, in order that the surveyors may see it, and certify whether it be fit for sowing or not.

Provided that if, at the rates before specified, more money shall be claimed upon the Flax and Hemp, than 1800*l.* and less upon the Seed than 330*l.* or *vice versa*—then the unclaimed sum or saving upon the one shall be applied to paying proportionally the excess of claims upon the other. But it is to be expressly noticed, That if the total claims amount to more than the whole 2,130*l.* before specified, then the rate of premium must of course be reduced, to such extent as shall be found necessary.

Further, with a view of exciting the attention of Farmers and others to the important object of producing more effectual supplies of Flax Seed, there is hereby offered for the present year 1803, one Hundred and Fifty Pounds Sterling.

In Ten Extraordinary Flax Seed Premiums;

To be distributed in general throughout Scotland, over and above the foregoing Premiums.

To the person or company who shall raise the greatest quantity of Flax Seed, fit for Sowing, saved and certified in the manner after-mentioned, the quantity not being less than 600 pecks

£ 30 0 0

The 2d greatest quantity not less than 500 pecks.

25 0 0

The 3d greatest quantity, not less than 400 pecks

20 0 0

The 4th greatest quantity, not less than 360 pecks

18 0 0

The 5th greatest quantity, not less than 300 pecks

15 0 0

Carried forward, 108 0 0

	Brought forward	108 0 0
The 6th greatest quantity, not less than 240 pecks		12 0 0
The 7th greatest quantity, not less than 200 pecks		10 0 0
The 8th greatest quantity, not less than 180 pecks		9 0 0
The 9th greatest quantity, not less than 120 pecks		6 0 0
The 10th greatest quantity, not less than 100 pecks		5 0 0

£150 0 0

In order to prevent the carelessness and waste of Flax at mills, which is frequently complained of, the Trustees recommend it to the Flax-growers, to attend themselves at the mills, as much as in their power, during the time of skutching; and to weigh out to each workman employed at the skutching, equal quantities of rolled Flax, and to superintend the skutching thereof.

It is recommended to the Flax-growers always to buy seed of the immediate preceding year's growth where it can be had of a good quality, as the surest means of procuring an abundant crop. And to those who intend to raise seed, that they should use foreign seed, as they will thereby obtain seed of the best quality for sowing again.

Bath and West of England Society for the encouragement of Agriculture, Arts, Manufactures, and Commerce.

At a General Meeting of the said Society holden the 12th of April, 1803.
W. DYKE, Esq. Vice President in the Chair.

The Chairman having reported from the Committee appointed for the purpose of procuring an eligible situation for the ensuing Ploughing Contest, that Ground had been engaged for in the parish of Stratford, about two miles from the city of Salisbury, towards Amesbury;

It was resolved, That such contest take place in the said parish, on Wednesday, the 25th of May, 1803, at Ten o'clock in the morning.

The premium for the first best Plough will be	6l. 6s.
_____ for the 2d ditto	4l. 4s.
_____ for the 3d. ditto, if it possess any real merit	2l. 2s.

The successful Ploughmen will be entitled to the usual rewards.

The Thanks of the Society were voted to Baron Hepburn, for the favour of his Communication, accompanied with a present of a valuable Scotch Horse Hoe: To Frederick Page, Esq. for some Plans of the Kennet and Avon Canal Navigation, and its relative connection with the principle towns and manufactories in England, by various Lines of Inland Navigation; as well as for the expression of his intention to favour the Society with his detailed observations of the nature of Interior Navigation, as tending to advance improvements in Agriculture.

Several other interesting Papers were produced, read, and referred to the appropriate Committees.

NEHEMIAH BARTLEY, Secretary.

Lyminster Agriculture Society. Spring Meeting, 1803.

CANDIDATES FOR FAT CATTLE.

	£.	s.	d.
To R. Budden, Esq. for the best fat Ox	5	5	0
Mr. Biddlecombe, best Ten fat Lambs	3	3	0
Mr. Lejeune, second best ditto	1	11	6
Capt. Cheaveland, best Ten fat Wethers	3	3	0
R. Budden, Esq. second best Ten fat Wethers	1	11	6

STOCK

No Cart Stallion produced			
Best Bull, Capt. Cheaveland	1	3	0
Best Cow and Calf, John Lyons, Esq.	2	2	0
Best Ram, or Munday	2	2	0

Election of Umpires. At this Meeting the following Resolutions were entered into:

That the president, the Vice President for the time being, Mr. Munday, Mr. Lejeune, Mr. Barney, Mr. Hunt, and Mr Noake, be the umpires for the next year.

That this meeting do, at the next meeting, take into consideration the giving a Premium to the Shearer who shall shear the greatest number of Sheep and in the best manner.

That at the next Meeting it be taken into a consideration, whether persons being Candidates for the same kind of Stock shall be entitled to claim both the first and second Premiums; and whether the Premiums upon the best fat Ox should not be reduced.

That it be also discussed at the next Meeting whether the quantity of Land to be ploughed shall not be increased from half an Acre to one Acre

That it be also discussed, whether a premium should not be offered to the hoer of the greatest quantity of turnips, though the hoer may not live within the district of New Forest East, and that the same may be performed by himself and assistants, either male or female.

JOHN RICHMAN, Secretary.

Yorkshire East-Riding Show of Cattle, Great Driffield.

The Committee for conducting the concerns of the show, consisting of the following gentlemen:

Sir Mark M. Sykes, Bart Sledmere House,
Edward Topham, Esq. The Wold Cottage,
John Grimston, Esq. Newick,
Richard Bethel, Esq. Rise,
And Digby Legard, Esq. Gatton House,

have adjudged the following Premiums to be distributed on Wednesday, the tenth day of August next:

For the best sheep, of any age, and bred in any part of England	10	10
For the best shearing sheep, bred in the East Riding of Yorkshire	10	10
For the second best ditto, bred as above	6	6
For the third best ditto, bred as above	4	4
For the best aged bull, bred any where, but restricted to remain six months in the East Riding afterwards	8	8
For the best two-year old bull, bred in the East Riding, and restricted to remain six months there	6	6
For the second best ditto, bred as above, and restricted as above	4	4
For the best two-year old heifer, bred in the East Riding	5	5
For the best yearling heifer, bred as above	5	5
For the best boar, to remain six months in the East Riding	5	5
For the second best ditto, to remain as above	3	3
For ten of the best shearing wethers, bred in the East Riding	10	10

MEMORANDUM.—In any case where there may not be a competitor, or where the Committee may not think the cattle or sheep shown, sufficiently excellent to deserve a premium, they reserve to themselves a right of withholding the whole, or what part of it they may think proper. All the sheep intended to be exhibited, must be unlet on the day of show, for the benefit of the East Riding.

Gentlemen and others who wish to patronize this very useful object of Agriculture, are requested to forward their subscriptions to Mr. William Drinkerow, of Great Driffield.

Implements of Husbandry.

The obvious advantages of introducing into Ireland, improved implements of Husbandry, and the great difficulty and expence of importing them from Great Britain, have induced several Gentlemen to propose the establishment of a Manufactory of implements, under the sanction and patronage of the Dublin Society, and the Farming Society of Ireland. The

object they have in view is to manufacture carts, ploughs, harrows, and every implement of acknowledged utility, after models to be tried, and fully approved of by competent judges—to make them of the very best materials—to sell them at moderate prices—and not to send them out till they shall have been proved. They propose, that the manufactory, subject to an occasional superintendence of a Committee of subscribers, shall be placed under the direction of a man of character and abilities, who shall receive such a proportion of the profits as will be an ample compensation for his trouble; and that some of the best artificers in the different branches connected with the establishment, shall be brought over from England and Scotland, under whom young men, from all parts of Ireland, if well recommended, may be taught.

As soon as a sufficient number of implements are distributed through the country, expert ploughmen may be sent through the different provinces to instruct labourers in the use of them.

It is computed, that a capital of 3000*l.* will be necessary to carry this plan into execution, which sum may be raised in shares of 2*5*l.** each. The Shares to be transferable, and any subscriber to have as many as he may wish. The subscriptions to be funded in the name of a trustee till wanted.

It is supposed that the manufacture, after defraying all expenses, will produce to the subscribers an interest of ten per cent.

There will be a meeting of the subscribers, at the Farming Repository, Stephen's-green, on Thursday, the 26th of May, to form regulations for conducting the institution.

Wivelicombe Agricultural Society.

At the great market on Trinity Tuesday, the following premiums will be given:

		<i>£.</i>	<i>s.</i>	<i>d.</i>
For the best bull,	A Piece of Plate, or	1	12	6
For the second best,		1	1	0
For the best ram	A Piece of Plate, or	2	12	6
For the second best,		1	1	0
To the best sheep shearers,		1	1	0
To the second best,		0	10	6

The bulls to be the property and in the possession of the members of this Society claiming for them, from the first of May.

The rams to be the breed and property of the Members producing them.

Notice of intention to claim any of the premiums to be given to the President before the first of June.

PHILIP HANCOCK, Jun. President.

The annual ploughing match, at Harlow, Essex, bids fair to rival many of the Agricultural institutions of the present period, for its practical application. The competition, which took place on the 4th instant, for the first class of prizes, was between sixteen ploughmen, all working at the same time, each to plough a ridge, and fetch upon a piece of fallow land, not having been broken up. The second class of prizes was contested for by six lads of sixteen years of age, and under, for ploughing a ridge. There was, on this occasion, near fifty of the neighbouring farmers present, who dined together in the temporary booth, erected upon the spot for that purpose, and who were generally of opinion, that from the ploughmen being certain of the annual distribution of prizes, there resulted an emulation of which they themselves were receiving the beneficial effects.

Among the vegetable productions of this country, none are more generally useful than the potatoe, hence we are induced to insert the account of a New Method of propagating Potatoes; communicated to the Bath and West of England Society, by the Rev. J. Barton.—Having a piece of ground choked up with potatoe stalks, from the negligence of the labourers employed in clearing it of a preceding crop; this gentleman carefully planted about 100 of them in drills, in the same manner as cabbage plants, first pulling off the potatoe that adhered to the roots. The experiment succeeded beyond his

expectation, as each stalk produced from ten to fifteen, some of them uncommonly large. Should this method be generally adopted, it will prove highly beneficial, and the farmer's industry in cleaning his ground will thus be rewarded; the man of fortune will give these stems, hitherto considered useless to his cottagers, to plant in their gardens; while those who have small potatoes, that are usually thrown to the hogs may now turn them to a better account, by planting them in beds, in November, and removing their stalks in the spring. This method of culture, particularly in wet soils, may probably succeed better than that commonly practised; as there would be no danger of their rotting, which the seed potatoes are apt to do: thus the markets might be supplied, not only with the root itself, but also with the stems, which could be sold in the same market as cabbage plant.

A show of rams lately took place at Ledbury, Herefordshire, for a considerable wager, between three gentlemen of the county of Hereford, when the premium was adjudged to Mr. Dobbs, of Little Marcle. One of the unsuccessful candidates had taken his ram thither from the west of Gloucestershire, in a carriage, at a considerable expence.

We insert the following article as a remarkable instance of fecundity in a cow, the property of a farmer, in the parish of Branchley, which calved, before she was eight years old, eleven calves, and what being still more remarkable was three years old before she had one. They are all now living. Another farmer in the same parish, having five calves, the produce of three cows this spring. One of the cows is a three yearling, the first time of calving, and brought twins.

The Archbishop of Canterbury has recently proved himself an exemplary encourager of inclosing waste lands, within the county of Kent. Most of the wastes for several miles on this side Canterbury, belonging to that See, his Grace has kindly allotted in different portions, from one to ten acres, to various deserving and industrious men, on trifling fines, for the term of 30 years. More than 40 neat white cottages have already been erected upon them, to the great comfort of as many poor families, and the credit of an extensive district, which a well directed benevolence has so highly ornamented, and essentially approved.

An experienced farmer recommends, that, when the young wheat suffers severely from the wire-worm at the roots, and it becomes advisable to plough up the demolished plants, neither barley nor oats should be sown, for they generally follow the fate of the wheat-crops. But that potatoes should be immediately planted on such ground, as the best *succedaneum*, in a national point of view, for a wheat-crop. They have also these additional advantages to recommend them, viz. That from the bitter which prevails in their vegetation, they resist the attack of the wire-worm, which becomes much lessened in number for want of food; and from the mode of cultivation proper to the potatoe, the land is prepared in the best way for another wheat-crop, or for vetches.

An ewe (of the small mountain-breed) the property of Mr. George Carter, of Heskett New Market, lately yeaned four fine ewe lambs; and what was something singular, the parent dam had four teats which gave a profusion of milk, for the support of her numerous progeny.

At the stock fair, at Stamford, the jobbers tried to keep up the prices of beasts and sheep, although the number of each was more than usual at May fair. It was late in the day before much business was done, at declining prices.

The great markets at Lincoln and Boston were never better attended than they have been this season; there were prodigiously large flocks of sheep, which we understand went off dearer at Lincoln, from 5s. to 10s. a head, than at Boston.

Worcester spring fair was well supplied with cattle and sheep; the former were much cheaper than of late, and many were driven away unsold; the

latter likewise declined in price. Horses were numerous, and good ones fetched high prices, but those of an inferior description were dull of sale.

At Iedbury fair, best making cheese sold from 60s. to 63s. per cwt. and seconds from 48s. to 56s. There was a good shew of cattle, which, however, went very slowly, and many were driven to other fairs.

At a late market at Abingdon, there was a large supply of fat and store pigs, about 700, which sold about 4s. in 20s. cheaper; notwithstanding which upwards 500 remained unsold at a late hour.

At Gloucester fair, cattle of almost every kind met a dull sale, at reduced prices: this will be observed to have taken place at all the late neighbouring fairs. Fat cows sold at 6½d. per lb. which is about 1d. cheaper than they were. Cows and calves, and barren cows, had a somewhat readier sale, but likewise at reduced prices. Of sheep, there was a good supply; few, however, was bought at inferior prices. Horses were very dear: but there were not many good ones.

A fair for horses and pedlary-ware was held at Cardigan; but very few horses were sold, and those at reduced prices.

At Wotton-under-Edge, fine pig meat sold at 6d. per lb. in the last market; and even met a dull sale.

The last year's hop-duty now appears to have been—old duty, 15,463l. 10s. 5½; additional duty, 18,152l. 16s. 7d.—Total 33,616l. 7s. 1½.

It has been found that wet straw and other green plants burnt in a slow mouldring manner before the wind, have the effect, by the diffusion of their smoke, to prevent those nipping frosts, which are at this season, and earlier in the year, from being fatal to the buds and sprouts of vegetables of all sorts.

At Lewes Cliff Fair, the shew of horned cattle was unusually large; and the attendance more numerous than had been witnessed for many years. The sale was extremely dull, and the greatest part of the stock, we believe, was driven away unsold.

At Newick fair country stock was heavy of sale, owing to the late cold weather, which has for these three weeks past put a stop to the growth of grafs, except in warm upland meadows.

Manufactures and Useful Arts.

SOCIETY FOR THE ENCOURAGEMENT OF ARTS, MANUFACTURES, AND COMMERCE.

We are informed that the Rewards conferred by the above-named Society will be presented this day, May 31, to the respective Candidates, by his Grace the Duke of Norfolk, the President, in the following order.

IN AGRICULTURE.—To the Right Hon. the Earl of Fife, for his extensive plantations of Forest Trees, and other Agricultural Improvements in North Britain, the Gold Medal.

To Lord Viscount Newark, for encouraging the growth of Oak Timber, by sowing Acorns and planting Oaks, in Nottinghamshire, the Gold Medal.

To John Shirreff, Esq. of Captain Head, North Briton, for his plantation of Officers, Class 9, the Gold Medal.

To the Rev. T. C. Munnings, of East Dereham, in Norfolk, for his experiments on the culture and preservation of Turnips, the Gold Medal.

To Mr. John Knapping, of South Shoebury, in the county of Essex, for gaining 230 acres of Land from the Sea, the Gold Medal.

To John Christian Curwen, Esq. M. P. of Workington Hall, in Cumberland, for his experiments on feeding Cattle with Potatoes, the Silver Medal.

To the Rev. Edmund Cartwright, of Woburn, in Bedfordshire, for a three-furrow Plough, the Silver Medal.

- To Dr. H. Ainslie, of Dover-street, London, for his plantations of Timber-Trees, near the Lakes of Windermere and Coniston, the Silver Medal.
- To Benjamin Waddington, Esq. of Lanover House, near Abergavenny, for improvements of Boggy Land, in South Wales, the Silver Medal.
- To Mr. David Charles, of Westmead Langhorne, Carmarthenshire, for a Machine for laying Land level, the Silver Medal.
- To Mr. Robert Green, of Westturrating, in Cambridgeshire, for a Drill Machine for sowing Peas, Beans, &c. the Silver Medal and Ten Guineas.
- IN POLITE ARTS.**—To Mr. Thomas Ryder, of Titchfield-street, Oxford Road, for a Line Engraving, Class 116. The meeting of Vortigern and Rowena, the Gold Medal.
- To Mr. Richard Aultin, of Paul's Alley, Barbican, for an Engraving on Wood. The subject England, Scotland, and Ireland, receiving the Offerings of Genius, alluding to the Rewards of this Society, extending to the united empire, the Silver Medal and Ten Guineas.
- To Miss Jackson, of Hanover-street, Hanover-square, for a Drawing in Chalks, of a Vestal, Class 103, the Gold Medal.
- To Miss Emma Farhill, of Mortimer-street, Cavendish-square, for an Original Drawing, Class, 104. The Death of Cleopatra, the Silver Medal.
- To Miss Blackburne, of Park-street Westminster, for a Drawing of Jupiter Ammon, the Silver Medal.
- To Miss Paytherus, of Norfolk-street, for an Original Portrait of her Sister, the Silver Medal.
- To Mr. J. T. James, of the Charter House School, for a Drawing of Worcester Cathedral, Class 102, the Silver Medal.
- To Miss Mary Ann Gilbert, of Devonshire-street, Portland Place, for a Painting, a View of St. Mark's Place, in Venice, the Silver Medal.
- To Miss Beauchamp, of Wimpole street, for a Painting, a Sea View, a copy from De Vlieger, the Silver Medal.
- To Miss Emma Smith, of King-street, Covent Garden, for an Historical Drawing of Achilles and Thetis, an original composition, Class 110, the greater silver Pallet.
- To Mr. James Hopwood, jun. Paradise Row, Islington, for a Drawing of Outlines, from a Cast of the Atlas, Class 105, the greater Silver Pallet.
- To Mr. Hugh Neill, of Warwick-street, Golden-square, for an Original Drawing of Brecknock Priory, in South Wales, Class 107, the greater Silver Pallet.
- To Mr. George Shepherd, of Radcliffe-row, City Road, for an Original Drawing of St. Alban's Abbey, Class 108, the lesser Silver Pallet.
- To Mr. R. Horwood, of Liverpool, for a Map of London, on a very extensive scale, Fifty Guineas.
- IN MANUFACTURES.**—To Mr. Thomas Barker, of St. Mary-le-bone, for an improved mode of Warping Webbs for Weavers, Ten Guineas.
- IN MECHANICS**—To Dr. John Winterbottom, of Newbury, in Berkshire, for a Machine for clearing Turnpike Roads from mud, the Silver Medal.
- To Mr. James Woart, of Fulham, for his method of raising a Roof sunk in the middle, the Silver Medal and Twenty Guineas.
- To Mr. Edward Maffey, of Hanley in Staffordshire, for his striking part of an Eight Day Clock, Twenty Guineas.
- To Mr. John Prior, of Nefsfeld, in Yorkshire, for his striking part of an Eight Day Clock, Thirty Guineas.
- To Mr. Thomas Fotheringham, of Alloa, near Stirling in Scotland, for making Mill Stones for grinding Wheat from the Abbey Craig Quarry, in that neighbourhood, Fifteen Guineas.
- To Mr. J. D. Rofs, No. 10, Bateman's Buildings, Soho-square, for a Ring with a contracting and expanding power to fit various fingers, Ten Guineas.

To Mr. William Bowler, of Finsbury-street, for a Screw Press, with a peculiar expanding power, Ten Guineas.

To Mr. John Antis, of Fulneck, near Leeds, for a method of ascertaining the number of times that Minerals or other things have been brought up from a mine in any given time, Ten Guineas.

To Mr. Edward Massey, of Hanley, in Staffordshire, for detached Escapements of Pendulum Clocks, Fifty Pounds.

In COLONIES AND TRADE.—To the Honourable Joseph Robley, of Tobago, for a considerable addition to his Plantation of Bread-Fruit Trees, in that Island, the Gold Medal.

An Account of the Number of Noblemen and Gentlemen elected Members since October last, whose titles and names are as follow :

His Grace the Duke of Bedford, Sir Francis Laforey, Bart. Major General Sabloukoff, of Petersburg, Mr. John Barwise, Edward Weatherby, Esq. William Kitchener, Esq. William Crippen, Esq. Stephen Freeman, Esq. Rembrandt Peale, Esq. Samuel Mellish, Esq. Hugh Edwards, Esq. James Esdaile Hammett, Esq. Dr. William Dickson, James George Upham, Esq. John Thomas Barber, Esq. Edward Simeon, Esq. Mr. Robert Wright, Mr. Joseph Stutely, Jun. John Trelawny, Esq. Mr. Thomas Mellish, Thomas Peregrine Courtenay, Esq. Mr. William Stapleton, Peter Warren, Esq. William Sherwood, Esq. Mr. Samuel Miller, Mr. Charles Richardson, Mr. John Woodburn, Wilhelm Bernhard-Linstow, Esq. of Copenhagen, Claus Eduart Wiinholt, Esq. of Copenhagen, William Hawes, M. D. Jens Friedenreich Hage, Esq. his Danish Majesty's Commissioner, Copenhagen, Henry Hofte Henley, Esq. Thomas Talbot Gotsch, Esq. Azariah Pinney, Esq. Peter Cox, Esq. Christopher Johnson, Esq. William Cowper, Esq. Mr. John Beaumont, Mr. Charles Baldwin, Mr. Joseph Wright, John Parke, Esq. Edward Rogers, Esq. Mr. Alexander McCauley, John Scott, Esq. John Sidney, Esq. Luke Hogard, Esq. Mr. John Berkeley, Mr. Roycroft Wrather, Titus Hibbert, Esq. Lewis Loyd, Esq. Edward Swaine, Esq. Mr. Richard Tapster, George Naylor, Esq. Stephen Shewell Hunt, Esq. Mr. R. B. Willson, Mr. William Roper, Arthur Aikin, Esq. G. Bentley, Esq. Charles Pearson, Esq. Lawrence Francis Dillon, Esq. Mr. James Harrison, William Bentley, Esq. Thomas Jones, Esq. Richard Firmin, Esq. John Wilkes, Esq. John Curwood, Esq. John Capel, Esq. Thomas Gill, Esq. Mr. Clarkson, Mr. Hodgkinson, John Simeon, Esq. Mr. B. Hooke, Mr. James Peter Kingston, Mr. John Sharpe, D. Hopkins, Esq. Mr. James Bevans, Mr. Joyce Gold, James Thompson, Esq. Mr. Nicolas Paul Geneva, Peter Richardson Esq. Charles Platt, Esq. Thomas C. Palmer, Esq. jun. Mr. John Hatchett, Rev. Jeremiah Joyce, James Hebden, Esq. Samuel Greig, Esq. George Duckett, Esq. Edward Morgan, Esq. John Buckshaw, Esq. Mr. Josiah Rhodes, Captain John Hall, Mr. George Moneypenny, John Roberts, Esq. Richard White, Esq. William Strutt, Esq. Joseph Strutt, Esq. George Benson Strutt, Esq. Stephen Lee, Esq. John Riland Mander, Esq. John Wharlton Bunney, Esq. Mr. John Miers, William Moffatt, Esq. Rees Goring Thomas, Esq. Philip Antrobus, Esq. William Little, Esq. James Akers, Esq. John C. Weguelin, Esq. Thomson Bonar, jun. Esq. Mr. William Cary, Thomas Watts, Esq. Robert Pierce Cruden, Esq. John Edwards, Esq. Mr. Robert Bancks, Philip Beaver, Esq. Theodore Morison, Esq. Henry Browne, Esq. George Silver, Esq. Patrick Milne, Esq. Mr. John Fowler, George Leame, Esq. James Green, Esq. George Friend, Esq. George Jernegan, Esq. Thomas W. H. Woodthorpe, Esq. George Smith, Esq. Mr. William Fuller Pocock, John Collin, Esq. Sealy Fourdrinner, Esq. David Davis, Esq. Robert Isherwood, Esq. Edward Smith Foss, Esq. Hubert Cornish, Esq. William Peel Rew, Esq. William Uphaw, Esq. William Vondenbel-den, Esq. of Quebec, (a corresponding Member,) Nicholas Gillbee, Esq. Thomas Jervis, Esq. M. P. Mr. J. G. Fontain, John North, Esq. John Lloyd, Esq. Adam Qldham, Esq. Charles Stewart, Esq. Mr. John Plowman.

LONDON PRICES OF GRAIN for May, 1803.

MARK-LANE, Monday, May 2.

Price of Grain, on board Ship, as under

OUR supplies being short, an inconsiderable advance has again taken place in most Grain to day. Wheat may be considered from 1s. to 2s. per quarter dearer. Barley and Malt are likewise on the rise. Oats have a brisk sale, and are something dearer; and Peas and Beans fetch better prices than last week.

Wheat	47s to 61s	Malt	41s to 46s od	Grey Peas	28s to 31s od
Fine	62s to 63s 6d	Oats	16s to 21s	Small Beans	30s to 35s od
Rye	32s to 33s	Polands	22s to 23s 6d	Ticks,	27s to 31s od
Barley	20s to 25s 6d	White Peas	37s to 44s		

Monday, May 9.

The supply of Wheat at our Market this day, was not very great; best samples maintained last week's prices, but the inferior sorts were rather dull and 1s. cheaper. Barley is rather dearer; we have plenty of buyers, and not a very great supply.—Oats are likewise brisk, the supply of that article being rather short. In other articles we have no material variation.

Wheat	47s to 60s	Barley	21s to 26s od	White Peas	37s to 43s
Fine	61s to 62s od	Malt	41s to 45s 6d	Grey Peas	28s to 32s od
Rye	32s to 35s od	Oats	14s to 21s	Sm. Beans,	30s to 34s 6d
		Polands ditto	22s to 23s od	Ticks,	27s to 31s od

Monday, May 16.

In consequence of the impress, and the prospect of an immediate war, we had a number of buyers to-day. At first of the market, high prices were asked for Wheat, but few, even of the best samples, were taken off at more than an advance of 2s. and 3s. per quarter, every other article of Grain partaking of the rise.—Barley fetched 1s. 6d. per quarter more than last Monday; and Malt in proportion. Good Oats experienced an advance of half-a-crown a quarter.—Other articles, as well as Flour, are looking upwards.

Wheat	50s to 61s	Malt	43s to 47s od	White Peas	37s to 44s 6d
Fine	62s to 63s 6d	Oats	16s to 22s	Grey Peas	28s to 32s od
Rye	33s to 36s	Polands	23s to 24s 6d	Sm. Beans,	30s to 35s
Barley	23s to 27s od			Ticks	28s to 32s od

Monday, May 23.

Our supply of Wheat for this day's Market being but inconsiderable, and the buyers rather numerous, that article advanced full 5s. per quarter for the best mealing samples. Though we had no great demand for Barley and Malt, yet both were from 1s. to 2s. per quarter dearer. Peas and Beans are likewise on the rise. Oats, and particularly the better sorts, are also dearer.

Wheat	54s to 68s	Malt	45s to 49s 6d	Grey Peas	31s to 34s 6d
Fine	69s to 71s od	Oats	20s to 25s	Small Beans	32s to 36s od
Rye	33s to 36s od	Polands ditto	26s to 27s 6d	Ticks	28s to 33s od
Barley	25s to 29s od	White Peas	43s to 47s od		

Monday, May 30.

Our supply of Grain to-day are but moderate, yet Wheat (except for some few very prime samples which obtain top prices) have felt a depression of full two shillings per quarter. Barley and Malt go off readily, there being but a short supply of the former. Oats of the best sort are rather dearer, and those of middling quality sell freely at last quoted prices. Peas and Beans are something higher. Flour rather inclines downward, having a better supply than of late.

Wheat	50s to 65s	Malt	44s to 50s	Grey Peas	32s to 35s 6d
Fine	66s to 67s 6d	Oats	19s to 26	Small Beans	33s to 37s 6d
Rye	33s to 36s	Polands ditto	27s to 28s 6d	Ticks	30s to 34s
Barley	25s to 30s od	White Peas	44s to 51s od		

Prices of Hops, Meat, Seeds, Leather, Tallow, &c. for May, 1803.

Price of Hops.		First Week	2d Week	3d Week	4th Week	5th Week
Bags.		<i>s.</i>	<i>s.</i>	<i>s.</i>	<i>s.</i>	<i>s.</i>
Kent	—	100 to 160	147 to 168	140 to 160	140 to 168	140 to 160
Suffex	—	100 to 147	140 to 160	140 to 158	140 to 160	140 to 155
Essex	—	100 to 140	140 to 155	140 to 150	140 to 160	140 to 155
Pockets.						
Kent (new)	—	120 to 200	147 to 200	140 to 189	160 to 200	140 to 230
Suffex	—	120 to 189	140 to 189	140 to 175	160 to 200	140 to 268
Farnham	—	260 to 231	140 to 189	240 to 280	240 to 280	200 to 240
Seeds.						
Canary Seed (per cwt.)	—	80 to 85	80 to 85	80 to 85	72 to 76	72 to 76
Red Clover ditto	—	— to —	— to —	— to —	— to —	— to —
White Clover, ditto	—	— to —	— to —	— to —	— to —	— to —
Trefoil, ditto	—	— to —	— to —	— to —	— to —	— to —
Carraway ditto	—	40 to 42	40 to 44	40 to 44	46 to 48	46 to 48
Coriander ditto	—	28 to 30	28 to 30	28 to 30	30 to 34	30 to 34
Turnip, (per bushel)	—	24 to 40	22 to 46	28 to 48	20 to 44	20 to 40
Rye Grass, (per quarter)	—	— to —	— to —	— to —	— to —	— to —
Cinque Foil, ditto	—	— to —	— to —	— to —	— to —	— to —
Rape Seed, (per last)	—	381 to 401	381 to 421	401 to 441	401 to 441	401 to 451
Meat at Smithfield,		<i>s.d.</i>	<i>s.d.</i>	<i>s.d.</i>	<i>s.d.</i>	<i>s.d.</i>
To sink the offal, p. ft. 8lb.						
Beef	—	4 4 to 5 8	4 4 to 5 8	4 8 to 5 8	5 0 to 6 4	4 8 to 6 4
Mutton	—	5 0 to 6 0	5 0 to 6 0	5 0 to 6 0	5 4 to 6 4	5 4 to 6 4
Veal	—	5 0 to 6 4	5 0 to 6 6	5 0 to 6 6	5 0 to 7 0	5 0 to 6 6
Pork	—	4 4 to 5 4	4 0 to 5 0	4 0 to 5 0	4 8 to 6 0	4 8 to 5 6
Lamb	—	6 0 to 8 4	6 0 to 8 4	6 6 to 8 4	6 6 to 8 0	6 0 to 8 0
Head of Cattle—Beasts about		2,000	2,000	1,800	1,800	1,500
— Sheep and Lambs		8,000	8,000	7,000	7,500	8,500
Price of Leather.		<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>d.</i>
Butts, 50lb. to 56lb. each	—	19 to 21	20 to 21	20 to 22	20 to 22	21 to 23
Ditto, 60lb. to 66lb. each	—	— to 23	22 to 23	23 to 23½	23 to 23½	23 to 24
Merchants Backs	—	19 to 19½	— to 19½	19½ to 20	19½ to 20	20 to 20½
Dressing Hides	—	19 to 20½	19 to 20	19 to 20	19 to 20	19½ to 21
Fine Coach Hides	—	21 to 22	21 to 21½	21 to 22	21 to 22	21½ to 22½
Crop Hides for cutting	—	21 to 22	21 to 22	21 to 22½	21 to 22½	22 to 23
Flat Ordinary	—	19 to 20	19 to 20	19½ to 20½	19½ to 20½	20½ to 22
Calf Skins, 30 to 40lb. p. doz.	—	28 to 34	28 to 34	28 to 34	28 to 34	28 to 33
Ditto, 50lb. to 70lb. do.	—	27 to 33	27 to 32	28 to 33	28 to 33	27 to 30
Ditto, 70lb. to 80lb. do.	—	26 to 28	26 to 27	26 to 27	26 to 27	26 to 27
Sm. Seals (Greenland)	—	45 to 48	45 to 48	45 to 48	45 to 48	45 to 48
Large do.	—	51 to 71	51 to 71	51 to 71	51 to 71	51 to 71
Tanned Horse Hides	—	18s to 35s	20s to 35s	20s to 35s	20s to 35s	18s to 34s
Goat Skins per doz.	—	— to —	— to —	— to —	— to —	— to —
Price of Tallow.		<i>s.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>	<i>s.</i>
St. James's Market	—	4	4	4	2	4
Clare Market	—	4	4	4	3½	4
Whitechapel Market	—	4	3	4	1	4
Per stone of 8lb. Average	—	4	3½	4	2	4
Town Tallow	—	73	6	71	6	69
Russia ditto (Candles)	—	74	0	73	0	72
Russia ditto (Soap)	—	69	0	68	0	69
Melting Stuff	—	59	0	58	0	59
Ditto rough	—	42	0	42	0	40
Graves	—	14	0	14	0	14
Good Dregs	—	10	0	10	0	10
Yellow Soap	—	76	0	78	0	78
Mottled ditto	—	88	0	86	0	86
Good ditto	—	88	0	90	0	90
Candles, per dozen	—	10	0	11	6	11
Moulds	—	13	0	12	6	12

Prices of Raw Hides, Hay and Straw, &c. for May, 1803.

Raw Hides.	First Week		2d Week		3d Week		4th Week		5th Week	
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Best Heifers & Steers, pr. ft.	3 8	to 4 4	3 6	to 3 10	3 8	to 4 0	3 8	to 4 0	3 6	to 3 10
Middling —	3 4	to 3 6	3 2	to 3 4	3 4	to 3 6	3 4	to 3 6	3 2	to 3 4
Ordinary —	3 0	to 3 2	2 10	to 3 0	3 0	to 3 2	3 0	to 3 2	2 10	to 3 0
Market Calf —	9 6		9 6		9 6		9 6		9 6	
Eng. Horse —	15s	to 18s	15s	to 18s	15s	to 18s	15s	to 18s	15s	to 17s
Sheep Skins —	0 0	to 0 0	0 0	to 0 0	0 0	to 0 0	0 0	to 0 0	0 0	to 0 0
Lamb Skins —	2 6	to 3 6	2 6	to 3 4	2 6	to 3 6	2 6	to 3 6	2 3	to 3 6
Prices of Hay and Straw.										
St. James's—Hay	5 15	0	5 8	3	4 18	3	5 15	0	5 13	6
Straw	2 8	0	2 3	6	1 19	0	2 3	6	2 5	0
Whitech.—Hay	5 13	0	5 11	0	5 8	0	5 5	0	5 10	0
Clover	6 16	6	7	0	6 10	0	6 13	6	6 18	0
Straw	2	0	2 1	0	1 18	0	1 16	0	1 15	0
Uxbridge.										
New Wheat per load	—	—	—	—	—	—	—	—	—	—
Barley	—	—	—	—	—	—	—	—	—	—
Oats	—	—	—	—	—	—	—	—	—	—
Beans	—	—	—	—	—	—	—	—	—	—
New ditto	—	—	—	—	—	—	—	—	—	—
Peas	—	—	—	—	—	—	—	—	—	—
Newbury.										
Wheat	43s	to 65s	50s	to 64s	48s	to 63s	50s	to 66s	48s	to 69s
New ditto	—	—	—	—	—	—	—	—	—	—
Barley	20s	to 23s	20s	to 24s	19s	to 24s	20s	to 25s	20s	to 26s
Beans	—	—	—	—	—	—	—	—	—	—
Oats	18s	to 22s	19s	to 24s	20s	to 24s	21s	to 24s	20s	to 24s
Peas	—	—	—	—	—	—	—	—	—	—

BANKRUPTCIES AND DIVIDENDS,

Announced between the 20th of April, and the 20th of May, 1803.

BANKRUPTCIES.

The Solicitors Names are between Parentheses.

AGNEW, J. Grosvenor square, banker. (Potts, Cref-
 new, Jewin street)
 Arnheim, A. Marcus, London street, Tottenham Court
 Road, linen draper. (Cockayne and Taylor, Lyon's Inn
 Frewer, W. Rochester, coach maker. (Hill, Rood lane
 Baynes, E. Rochester, shopkeeper. (Cutting, Bardet's
 buildings)
 Beare, D. Kensington, silbiller. (Field, Richmond build-
 ings, Soho)
 Bradneck, T. Waldfall, fadler and Ironmonger. (Kinderly,
 Lane, and Ince, Symond's Inn)
 Brown, J. Strand, gun maker. (Manning, Clement's
 Inn)
 Byron, J. Great Bell alley, merchant. (Aspinall, Quality
 court, Chancery lane)
 Beavis, H. Upper Thames street, victualler. (Burden, St.
 Andrew's court, Holborn)
 Beckley, J. Southampton, grocer. (Parker, Palmer, and
 Crippage, Edick street)
 Bentley, R. Welbeck square, haberdasher. (Willis,
 Warrford court)
 Bogue, P. Whitefriars, builder. (Newcomb, Vine street,
 Piccadilly)
 Binns, T. Great Barlow street, Marybone, water closet
 maker. (Gale, Bedford street, Bedford row)
 Barber, J. Manchester, machine maker. (Ellis, Curfior
 street)
 Booth, T. and T. Ireland, Blakeley, dyers. (Seddon, Man-
 chester)
 Chapman, R. Old Bethlem, chip and straw hat manufac-
 turer. (Kearley, Inner Temple)
 Curtis, J. Oxford, wine and brandy merchant. (Bishop,
 Edick street, Strand)
 Chater, W. Charles street, Long Acre, coach spring ma-
 ker. (Framme, Little St. Martin's lane)
 Courtes, J. and J. Stephens, Penryn, shopkeepers. (Rear-
 don, Corbet court)
 Cowen, G. Hoxton, oil and colour man. (Crawford,
 Crown buildings, City Road)
 Croket, P. and T. Stevenson, Liverpool, merchants. (Bat-
 ley, Chancery lane)
 Claridge, W. Garden place, St. George's Fields, brick-
 layer. (Howard, Henrietta street, Covent Garden)
 Cox, J. Leighton Buzzard, corn and flour merchant.
 (Adams, Old Jewry)
 Dopsid, J. Aldermanbury, warehouseman. (Shearman,
 Fleet street, Blackfriars)

Dealey, T. and J. Hallett, Little Queen street, Holborn,
 coach makers. (Johnson, Ely place)
 Dorset, G. J. Johnson, J. W. Wilkinson, W. Berners, and J.
 Tilton, New Bond street, bankers. (Cardale, Hall-
 ward, and Spear, Gray's Inn)
 Driscoll, M. and J. Mudden, Union court, Broad street,
 merchants, brokers, and insurers. (Palmer and Tom-
 linson, Warrford court)
 Drury, T. Warwick, shopkeeper. (Boyce, Norwich)
 Every, W. New Sarum, shopkeepers. (Phipps, Philip-
 ot lane)
 Freeman, W. St. Martins, Stamford Baron, grocer and
 cheesemonger. (Smart, Staple Inn)
 Farmer, E. Jua. Stratford, Killex, butcher. (Argill,
 Whitechapel road)
 Gwynne, D. Frith street, Taylor. (Hannam, Piazza
 Chambers, Covent Garden)
 Gane, J. Bridgewater, innkeeper. (Blackdale and Alex-
 ander, New Inn)
 Gardiner, H. Thames street, feedman. (Wilson and
 Broad, Union street, Southwark)
 Garrod, S. Saxmundham, taylor and draper. (Babst and
 Cox, Canton, Suffolk)
 Garrett, W. Good lane, merchant. (Wild, Warwick
 square)
 Gough, P. Birmingham, butcher. (Egerton, Gray's Inn)
 Gadd, J. Bristol, dealer. (Heolis, Pancras lane)
 Gibbs, J. Birmingham, button maker. (Devon and Tooke,
 Gray's Inn)
 Hitchcock, W. H. Bird in hand court, Cheapside, ware-
 houseman, first, W. H. Hitchcock and J. Green.
 (Manning, Clement's Inn)
 Hudson, J. Devonshire square, merchant, partner with
 Isaac Strobom, of the Cape of Good hope. (Greg-
 on, Angel court, Throgmorton street)
 Harris, J. Exeter, coach maker. (Drewe and Loxham,
 New Inn)
 Hippoly, W. Shepton Mallet, shopkeeper. (Warry, New
 Inn)
 Heiden, L. Warwick lane, coffee house keeper. (Thomp-
 son, Portsmouth street)
 Herinshaw, R. Palace wharf, Lambeth. (Murphy, Bou-
 verie street)
 Hallam, B. Jun. Bury St. Edmunds, chymist and drug-
 gill. (Lyon and Collier, Bedford row)
 Jones, J. Wood street, Cheapside, Leghorn hat warehouse-
 man. (Rousfield, Bowyer street)
 Jones, T. Old palace house, vintner. (Biggs, Hatton
 Garden)
 Johnston, W. Whitehaven, merger and woollen draper.
 (Clement, Staple Inn)

- Jacob, S. Tabernacle Walk, Finsbury square, dealer.
 (Treas. Great George Street, Mithorl)
- Jabbon, H. Pockington, spirit merchant, (Sykes and Knowles, Bellwell court)
- Jacob, W. Poole, shopkeeper, (Mawley, Tottenham Street)
- Jefferys, G. New Bond Street, goldsmith, (Pellatt, Bartlett's buildings)
- Kelly, J. Liverpool, flour dealer, (Parr and Thompson, Liverpool)
- Kennett, R. formerly of New Bond Street, Upholsterer now of Lincoln's Inn Fields, Toothache-curer, (Duff Thavies Inn)
- Larkin, C. Rochester, coach maker, (Towathead and Russell, Southwark)
- Lloyd, F. Bridge Street, Westminster, linen draper.— (Clark, Sadler's hall)
- Linnington, W. Exeter, currier, (Williams and Brooks, Lincoln's Inn)
- Lang, W. Brighton, calico printer, (Blacklock, Temple Lightly, J. and J. Thompson, Upper Thames Street, Stationers, (Laxley, No. 80, Cheapside)
- Lansell, W. Berwick, ladder, (Sanderson, Paisgrave place)
- Mathews, G. and T. Turnbill, Hudge row, merchants, (Leveridge, Fore Street)
- Malins, W. Evenham, mahler, (Smart, Staple Inn)
- Mackellar, D. Savage Gardens, wine merchant, (Oakley, New London Street)
- Martison, R. St. John's Street, Upholsterer, (Kibblewhite, Gray's Inn place)
- Maffey, C. New Street, St. Catherine, wharfinger, (Mitchell, Union Court, Broad Street)
- McGofford, M. Finsbury Square, merchant, partner with J. Life, Jun. of Philadelphia, (Palmer and Tomlinson, Warford Court)
- Maydwell, S. Wheeler Street, Spital Fields, Silk dyer and dry falter, (Evitt and Rixon, Maydon Square)
- Michaela, W. Berwick, soap boiler and tallow chandler.— (Price and Williams, Lincoln's Inn)
- McWman, C. late of Shaftesbury walk, now of Hall's rents, Butcher row, East Smithfield, soapfeller, (Howard, Shire lane)
- Palmer, W. Sonning, butcher, (Smart, Staple Inn)
- Riddell, A. and R. High Street, Borough, grocers and tea dealers, (Widd, Warwick Square)
- Ruffell, J. Old Bond Street, builder, (Taunton, Pump Court)
- Renshaw, F. Ilkington, timber merchant, (Leigh, Barbard and Malton, Crickton, New Bridge Street)
- Stawell, T. Habartum, dealer, (Scott and Howard, Great Russell Street, Bloomsbury)
- Scarf, R. King's Lane, brewer, (Gorobed, Browns, Gorbod, Norfolk Street, Essex)
- Skegg, T. Davis Street, Berkley Square, oilman, (Nelson, Maddox Street)
- Sherriff, A. Newman Street, tailor, (Pike, Air Street)
- Smith T. S. Fritwell, victualler, (Fisher and Tomlinson, Warford Court)
- Sawyer, T. Woolwich, victualler, (Pearce and Dixon, Paternoster row)
- Spaggan, J. and W. Gravesend, soapfellers, (Nind, Great Freetown Street)
- Sedgwick, J. Manchester, manufacturer and cotton spinner, (Hills, Cusford Street)
- Thurston, H. Winchester, grocer, (Edmunds and Son, Exchange Office, Lincoln's Inn)
- Tredgold, R. Midland, Winchester, miller, (Hopkins, New Alresford)
- Thorne, T. Buxton, Mansell Street, baker, (Holmes, Mark lane)
- Thompson, A. Bow lane, factor, Mrs. A. Thomson and Co., (Crowder and Larive, Frederick's place)
- Waller, J. Marriott, and firm, Alchem, Nighttown, Bridol, merchants, (Battye, Chancery lane)
- Wathams, W. Hereford, Joiner, (Kinderley, Long, and Ince, Symond Lane)
- Wilson, G. and E. Dixey, late of Wardrobe place, Doctor's Commons, now of Piccadilly, optician, (Vincent and Upton, New North Street, Red Lion Square)
- Wainwright, W. Liverpool, Ironmonger, (Williamson, Liverpool)
- Duff, J. Finsbury square, merchant, June 8
- Dixon, C. Fenchurch Street, brush maker, June 4
- Dornford, T. Philip lane, wine merchant, May 8
- Doring, W. and D. Brightelmington, Shopkeepers, June 7
- Dugan, T. South Shields, Ship owner, June 3
- Emmott, J. H. and F. Browne, Old Jewry, wine merchant, joint estate, and separate estate of Emmott, May 28
- Ezari, A. Chichester, spirit merchant, May 27
- George, J. Piccadilly, draper, May 17
- Gibbs, J. Wrotham, corn chandler, May 17
- Gilbert, R. Reading, draper, May 24
- Gowland, T. Jun. White Lion Court, Birch Lane, and Belmont place, Vauxhall, merchant, June 14
- Hobson, J. Moorgate in Netherthong, Yorkshire, dealer, May 18
- Hope, F. Liverpool, merchant, May 24
- Hopwood, J. Long Acre, lace man, June 11
- Holygate, J. Manchester, manufacturer, May 27
- Hogget, J. Birmingham, teaman, June 1
- Hopwood, D. Union Street, May 16
- Jackson, B. Wentworth, corn dealer, June 6
- Jamison, R. Bayley, Drottwich, miller, May 27
- Jones, J. Birmingham, draper, May 28
- Jackman, N. Man, and G. Bartlett, Gerard Street, Ironmongers, June 7
- Jones, T. and J. Harrison, under the firm of Jones and Co. Ludlow, and of Harrison and Co. High Holborn, ironmongers and dealers, June 1
- Kerfshaw, J. Arnsfield, cotton spinner, May 18
- Kay, W. Birmingham, factor, June 1
- Kirkpatrick, T. Church passage, Cateaton Street, merchant, June 1
- Landsale, C. St. Martin's Street, Leicester Fields, tailor, May 21
- Long, G. Maldon, Shopkeeper, May 14
- Laingard, J. Fenchurch Street, flour merchant, May 31
- Logan, B. and R. Slater, Newgate Street, linen drapers, May 25
- Langwith, J. Grantham, builder, June 9
- Lindale, E. York, draper, June 14
- Like, T. Old Brompton, builder, June 15
- Luncheater, Ann, Spoken Lane, dealer, June 9
- Long, G. Malton, Shopkeeper, June 7
- Mure, Hutchison, Robert, and William, Fenchurch Street, merchants, May 24
- McKnight, B. Jun. Liverpool, merchant, May 20
- Moody, J. and J. Ruffell, Birmingham, factors, firm, Mew and Moody, separate estate of Ruffell, May 25, final
- Mogley, Wm. Upper Thames Street, timber merchant, May 28
- Malcolm, B. Old Broad Street, broker, June 14
- Murre, Hugh, Liverpool, grocer, June 8
- Nedham, B. Doncaster, fishing manufacturer, May 27
- Nicholls, T. Birmingham, grocer, etc. June 6
- Nutshall, T. and J. Smethurst, Salford, brewers, June 18
- Pedley, C. W. Purcell, and J. Hargraves, Coughton, curton manufacturers, May 28
- Preston, R. Liverpool, merchants, May 26
- Perry, J. and G. Rigg, Broad Street, warehousemen, June 7
- Phillips, J. Totnes, Shopkeeper, June 8
- Parry, J. Birmingham, button and toy maker, June 6
- Rowan, J. Burton on Trent, hawker, May 23
- Ruffell, J. Worcester, dealer, May 16
- Ruffell, J. and E. W. Hartland, and T. Williams, Wombourne, merchants, June 1
- Robinson, S. Sheffield, Kidder Smith, June 8
- Richard, J. P. Liverpool, merchant, June 10
- Robinson, M. Liverpool, scrivener, June 9
- Stewart, W. Doncaster, hawker, June 14
- Stain, J. Lubeckham, farmer, May 20
- Stephens, W. Abchurch Lane, oyster dealer, June 9
- Sealy, W. Jun. Retford, armorer, May 27
- Scott, A. Worthington, mercer, June 7
- Smith, T. Liverpool, woollen paper, May 30
- Smith, G. Barby, grocer, etc. June 2
- Smallwood, W. Greenfield Street, Whitechapel, upholsterer, June 7
- Sheringham, J. Great Marlborough Street, paper balancer, June 11
- Simpson, J. Manchester, hat manufacturer, June 13
- Stoddart, J. T. Frinton and J. Frinton, Newcastle, corn factors, June 7
- Thomas, J. Bathwick, lodging house keeper, May 30
- Turnbull, J. J. Forbes, R. Allen Crawford, and J. Shaw, Broad Street, merchants, separate estates of Forbes and Turnbull, June 28
- Vine, J. Holborn, linen draper, May 18
- Wright, T. Berkeley, clothier, May 17
- Wardrope, T. Tuckwell Street, Carpenter, May 18
- Wickens, L. St. Clement's church yard, haberdasher, June 7
- Wilson, J. Strand, umbrella maker, May 18
- Whitby, J. Bankside, Southwark, colour manufacturer, May 10
- Watson, W. Fenchurch Street, merchant, May 28
- Warner, A. Marlborough, stocking manufacturer, June 1
- Whitaker, T. Colonsate near Ruffell square, victualler, June 1
- Wainwright, J. Liverpool, gun maker, June 1
- Whittington, W. Bradford, clothier, June 4
- Williams, H. Crickhowell, scrivener, June 4
- Williams, J. Birmingham, builder, June 8
- Yare, J. Oxford Street, linen draper, May 3
- Yate, J. T. Spencer Dun, S. Hilton Park, and T. Yate, Liverpool, merchants, June 11

DIVIDENDS ANNOUNCED.

- Andrews, J. Alton, tallow chandler, &c. May 16, final
- Arnold, T. Lloyd, Shrewsbury, scrivener, May 23
- Allen, J. St. Mary Acre, merchant, June 7
- Andrews, G. Holybourne, turner, May 25
- Arundell, J. Newbury, clothier, June 1
- Avgaroe, J. and F. J. Alancant, Oxford Street, hosiery, June 7
- Ashby, W. Northampton, fadler June 7
- Bryden, J. Charing Cross, print seller, June 4
- Bratt, C. Warrington, linen draper, May 26
- Bureau, W. Chatham place, scrivener, June 4
- Bruoke, F. W. Farrer, and R. Row, Basinghall Street, warehousemen, June 7
- Bamford, S. P. J. Cooke, and J. F. Clifford, Tiverton, worked manufacturers, June 4
- Brown, W. Wymondham, tanner, June 17
- Brownlie, J. John, Beckland, Shopkeeper, June 6
- Chilchaste, E. Foulty, linen drap, May 28, final
- Chenney, J. Oxford Street, linen draper, partner with J. Summerfield, and J. Dawson, June 24
- Carter, J. Kenning, Common, cow keeper, May 24
- Lury, G. Great Yarmouth, upholsterer, May 23
- Coles, J. Smithfield, banker and agent, June 7
- Levan, J. St. Paul, lace man, May 18

PRICES OF COALS AT THE COAL EXCHANGE, LONDON,
For MAY, 18c3.

Names of Coals.	Mon. 2d.	Wed. 4th	Frid. 6th	Mond. 9th	Wed. 10th	Frid. 13th	Mond. 18th	Wed. 16th	Frid. 18d.	Mond. 23th	Wed. 27th
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Adair's Main					42 6			45 6	50		
Baker's Main											
Bedford Main								45 6			
Benton				43	43			45 6			
Biddick Main								48 6			
Bigg's Main	43 6			44	44	44	48 6		56		56
Bladon Main											
Byth											
Boundry											
Burn Moor	40 9			42	41 6	41		47		48	
Branding					42 6						
Burley											
Byker											
Byker, High & Low											
Cowpen								47			
Derwent						41 6		47 6			
Eden Main								46			
Eighton Main				42							
Flockton											
Greenwich Moor											
Hugh Moor								46 3			
Hartley					41 6	44 6					
Heaton Main	43 3			44	44 6	44		49	56		
Hebburn Main	43 3			44		41 3		50			
Holywell					41			45 6			
Kenton Main				43 3	43 6						
Lambton's Low d.t.											
Lawson's Main									43		
Morley Hill											
Montague Main				42							
Mount Moor											
Murton											
Murton High Main											
Newbottle					40 6			46		46 9	
New Tansfield					43 6						
Pitt's Tansfield M							44	50	56		
Primrose							42	47 9	49 6		
Pontop	42			44	43		43	47			
Pecey		44					41 9	45 6		48 3	
Rectory		38		43				47	46 6		
Ruffel's Main					41 6			46			
Sheriff Hill											
South Moor											
Stanley Main											
St. David		34					44 6				
Team											
Tyne Main											
Uiworth Main											
Walbottle Moor	37 6			41 9	41	41		46		48	
Walker								49			
Wall's End		44	44	45	45 3	45		50	56	56	
Warwick				38 6							
Wharton											
Willington		43 6		44		44					
Wylam Moor	37 6				40 6	40 6					
Wentworth				44 3							
Whitefield											
Wooler Main											

AVERAGE PRICES OF CORN, by the quarter of eight Winchester bushels; and of OATMEAL, per boll, of 140 pounds Avoirdupoise
From the Returns received in the Week, ended MAY 21, 1803.

INLAND COUNTIES.

COUNTIES.	Wheat.		Rye.		Barley.		Oats.		Beans.		Peas.		Oatmeal.	
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
Middlesex	60	3	34	0	25	1	24	5	32	3	36	4		
Surrey	42	1	34	0	25	4	22	3	33	6	35	0		
Hertford	56	4	35	6	25	6	21	8	36	0	37	9		
Bedford	53	0	33	1	23	8	21	6	30	6				
Huntingdon	51	8			21	4	17	0	26	2	33	7		
Northampton	52	6	29	6	20	6	17	8	27	4	28	0		
Rutland	55	0			22	0	18	0	32	0			57	3
Leicester	56	0	31	1	22	7	19	2	32	4	31	1	34	2
Nottingham	62	4	38	0	26	10	19	2	33	0				
Derby	63	8			27	0	20	4	36	8	32	0	25	5
Stafford	63	5			28	5	21	4	35	5			27	9
Salop	59	11	40	4	25	10	21	8			34	4	63	7
Hereford	52	2	32	0	23	7	22	4	35	2	37	0	61	0
Worcester	55	1	29	3	24	8	25	6	34	4				
Warwick	59	4			25	10	21	11	36	6			34	11
Wilts	56	4			23	2	21	4	38	0	34	0		
Berks	60	0			23	4	23	3	32	10	38	0		
Oxford	54	11			22	9	20	8	29	11	33	10		
Bucks	53	3			22	3	20	6	30	7	34	0		
Brecon	55	11	33	6	24	10	16	0			28	0	34	8
Montgomery	57	11			22	5	18	9			33	7	38	2
Radnor	54	5			24	0	21	0			32	10	60	5

Maritime Counties.

Essex	59	0	33	6	23	8	23	0	30	4	31	0		
Kent	58	8			24	4	23	0	30	4	35	3		
Suffex	53	0			25	3	21	10						
Suffolk	56	10			21	9	20	2	26	7	29	5	49	0
Cambridge	52	8	32	0	22	6	16	7	26	11	33	0		
Norfolk	55	8			21	5	18	8	27	3	29	0		
Lincoln	53	3	35	0	22	6	16	10	28	11				
York	54	8	33	9	23	1	16	3	24	9	58	8	35	7
Durham	57	5					20	6						
Northumberland	51	5	37	0	22	8	18	3			34	0	14	9
Cumberland	64	10	51	1	29	0	24	6						
Westmorland	71	2	53	4	28	4	24	0					17	6
Lancaster	61	6			27	17	21	8	36	11	33	0	17	4
Chester	57	9			27	6	18	4					18	9
Flint	56	5			29	10								
Denbigh	62	8			28	8	21	6					35	7
Anglesea							13	6						
Carnarvon	64	0	42	0	26	0	16	6					31	9
Merioneth	64	2	44	0	28	8	20	0					34	5
Cardigan	58	10			18	3	12	0						
Pembroke	53	3			20	2	13	2						
Carmarthen	60	0			19	11	13	5						
Glamorgan	56	4			22	4	20	0						
Gloucester	56	8			25	8	25	2	32	10	40	5		
Somerfet	57	4			23	3	20	10	30	0				
Monmouth	57	9			22	11								
Devon	61	5			22	11	19	1						
Cornwall	60	8			23	9	20	2						
Dorset	56	5			23	1	21	11	38	0				
Hants	56	11			23	2	21	8	34	5				

A TABLE of the Prices of STOCKS in May, 1863.

Days	Bank Stock.	3 per Ct. Red.	3 per Ct. Consols.	4 per Ct. Consols.	5 per Ct. Navy.	5 per Ct. Loyalty.	Long. Ann.	Short Ann.	Imp. 3 per Ct.	Imp. Ann.	India Stock.	Omnium.	5 per Ct. Irish.	Consols for Act.	Ticket.
April 28	471	64½	65½	82½	101½	99½	19½	4 1-16	62½		203½		95½	65½	
29	171	63½	64	82½	100	98½	19½		61½ ex. di.				94½	64½	
30		62½	63	80½	98½	97½	18½							63½	
May 2	167	63½	63½	80½	99½	98	18 15-16				205			63½	
3		63½	64½	81½	99½	97½	19							64½	
4		63	64½	80½	99½	98	18 15-16		62					64½	
6	165½	62	63	80½	99	97½	18½	4 1-16						65½	
7		64	65½	80½	99½	98½	19½		62½					65½	
9		63½	64½	81½	99	97½			61½					64½	
10		63	64	80½	99	97½	18½	4			201½			64½	
11		62½	63½	80½	98½	97½	18 13-16		62½		201½			64½	
12	165½	63½	64½	81½	99½	98	18 15-16							64½	
13		64	64½	82½	99½	98½	18 15-16							64½	
14		64½	65½	82½	97	97	18 15-16							64½	
16		56½	60	76½	95½	94½	18½		57½		182			60	
18	153½	58½	59½	76½	94½	93½	17½		57½					59½	
20		58½	59½	76½	94½	93½	17½		57½					58½	
21		58½	59½	76½	94½	93½	17½	3 13-16	57					58½	
23		58½	59½	76½	94½	93½	17½	3 13-16	56½					58½	
24	146	58	59	76½	94½	93½	17½		55		180			58	
26		56½	57½	76½	92½	91½	16½							56½	
27	145	47½	51½	72½	92½	91½	16½	3 13-16	55½					55½	

T. BISH, STOCK-BROKER, Old State-Lottery Office, No. 4, Cornhill, London.

TO OUR CORRESPONDENTS.

WE are once more under the pleasing necessity of publicly expressing our thanks to our eminently respectable Correspondent, who has favoured us with a drawing of, and communications respecting the new species of turnip, with which this number of our Magazine is embellished. But it is not merely for this embellishment that we are grateful, but on account of the benefit which we trust the public will derive from hence; for we are emboldened by the kindness of our Correspondents to think, and to say, that this number does not stand in need of any extraordinary embellishment to recommend it to the attention of the agricultural world. And indeed, should occasion call for it, we should not hesitate or fear to place this, or any of our late numbers, in competition with any publication of a similar nature that has hitherto appeared. And whether our Magazine shall or not continue to retain this degree of excellence, depends solely upon our Correspondents, who have it in their power to make it as entertaining, as instructive, and as worthy of themselves as they please. A single page, transmitted monthly, from only one half of the number of our present kind contributors, will constantly form a valuable quantum of materials.

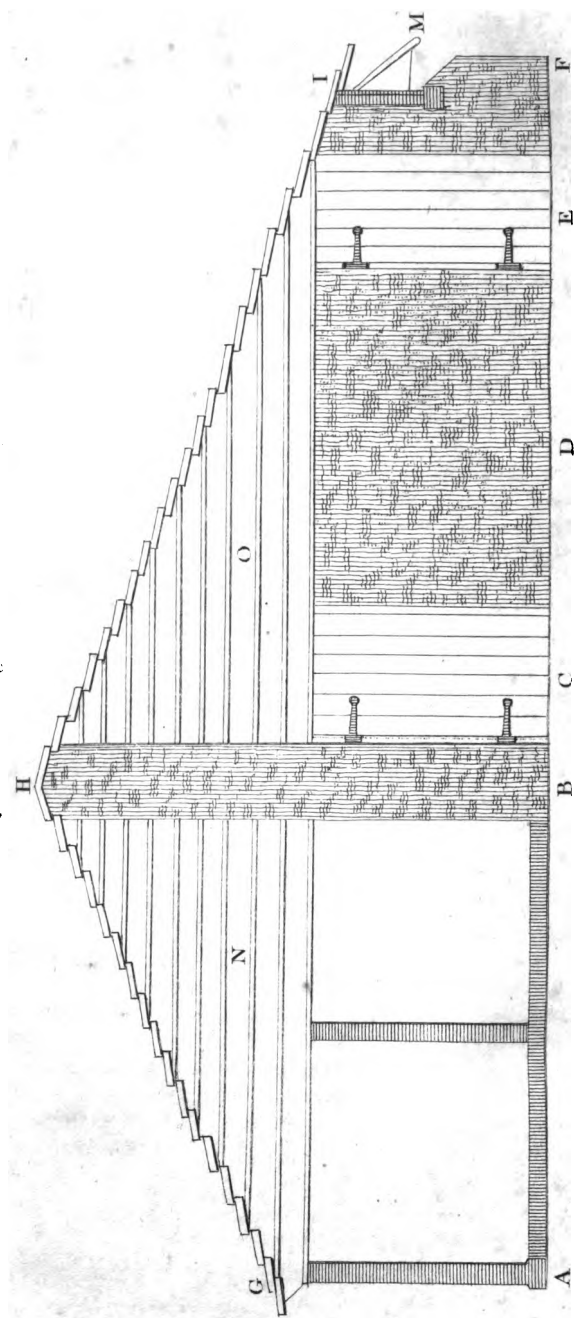
The contents of Mr. Cocks's letter are very encouraging to Farmers to persevere in the cultivation of that most palatable of all vegetables, the Swedish turnip. We hope we shall soon again have occasion to thank Mr. Cocks for having imparted to us fresh information from the abundant source afforded by the superior system of husbandry practised in Sussex.

The course of crops recommended by that well known and able writer Mr. Middleton, demands the attention of every, both old fashioned and new fashioned, farmer.

Mr. R. Weston will of course pay due attention to the animadversions of Philalethes.

We feel no uneasiness on being told that we have two Correspondents who use the same signature, of "a Norfolk Farmer," we only say, that we should be very happy to be subjected to the confusion that might arise from having *twenty* such, with the same signature,

*Elevation of one of the Ends of the Feeding House for Cattle,
erected at Hafod, by Tho. & Johnes Esqrs.*



THE AGRICULTURAL MAGAZINE.

No. XLVII.]

JUNE, 1803.

[VOL. VIII.]

DESCRIPTION OF A FEEDING HOUSE FOR CATTLE.

WITH A PLATE.

To the Editor of the Agricultural Magazine.

SIR,

ON making the Tour of South Wales during the last Autumn, I visited Hafod, the residence of Thomas Johnes, Esq. Member of Parliament for the county of Cardigan. This delightful place is situated about sixteen miles from Aberystwith, and near the road leading to it from Rhayader. The agricultural improvements made by the above gentleman demand particular notice, as probably no part of Great Britain can produce an example likely to procure eventually so great a benefit in any neighbourhood. Time will not permit me at present to enter into a long detail of the particulars, I shall, however observe, that the soil of that part of the country appears to be formed from decomposed argillaceous slate, and was supposed formerly incapable of producing wheat, and almost unfit for other kinds of corn, or even hay grass. I had, however, the pleasure to find some very excellent crops of wheat and barley upon the land, and his meadow land in fine condition. The barley had been sown with Mr. Cooke's drill, and though the land was hilly and apparently full of small fragments of broken slate, the crop was very full and even. His extensive plantations of forest trees were in a very luxuriant state, and particularly his larch trees, which flourish in every part of the estate, even upon precipices where there appears scarce any soil, and amongst fissures of the rocks. I mention these circumstances to show that nature is more grateful to the industry of man than is frequently supposed, and as a tribute of applause due to the person who has had penetration and courage to conquer those prejudices which we are apt to imbibe in infancy, and which seldom quit us in our course of life, continuing throughout a bar to improvement. Mr. Johnes has, however, surmounted every difficulty of this kind, and whether we consider the picturesque scenery of Hafod, its present natural products, or the instruction it affords as a farm, I do not recollect, though I have traversed a great extent both of this kingdom and the continent, any place so interesting, or which affords so much gratification to the mind.

Ag. Mag. Vol. 8.

3 H

Mr. Johnes has lately taken much pains in collecting various breeds of cows to ascertain their respective merits in producing milk and cheese, and has a great show of fine cattle in this line; he has corrected an erroneous notion which has generally prevailed, that cheese of particular qualities can only be produced in particular districts, and that good cheese could not be made in Wales; he has proved that at Hafod cheese may be made at will, so nearly resembling the best Parmesan, Stilton, Gloucester, Cheshire, or Lancashire, that the difference cannot be perceived by good judges; and that the whole business consists in various modes of producing it from the same milk. I have added two receipts for making toasting cheese, as practised at Hafod, for the information of your readers, both of which will be found to answer, and are as follows:

Hafod Toasting Cheese.

Take thirty gallons of milk from the cow, if you wish to colour it, add a small quantity of annotta ground with a little milk upon a tile. Add to your milk as much runnet as will coagulate it. In about an hour's time it will be fit to take out the whey from it; this is done by pressing the skimmer upon it, and touching it as little with the hand as possible. Press as much of the whey from it as you possibly can, put it under the press, turning it and changing the cloth twice a day. In four or five days it will be fit to take from the press, then lay it on a smooth stone and rub it well over with salt, do this for three days, and treat it afterwards as other cheese. The vats for these cheeses should not be more than three inches in depth. Five or six holes bored in the sides of all vats is a great improvement.

Another method for making toasting cheeses is by heating the milk, so that it is put warmer than the natural heat together. When the curd is come and drained from the whey, it is scalded with whey. It is then pressed in the cheese mould as dry as possible, afterwards broken very fine with the hand, and the dairy woman will then add as much salt as she shall think proper. It is then put under the press and treated like other cheeses.

The erection which Mr. Johnes has made at Hafod for the feeding of his cattle, seems formed upon a better plan for the purpose than any I have seen elsewhere; I have therefore sent a description and drawing thereof, which I have no doubt will be acceptable to many of your readers, and contribute to promote, what I am very anxious to do, the interests of agriculture; a branch of knowledge of infinite importance to this country. At a further period I may probably send you some further particulars respecting the improvements at Hafod.

In the mean time, I remain, Sir, your obedient servant,
VIATOR.

Description of a Feeding House for Cattle erected by Thomas Johns, Esq. at Hafod.

The Engraving represents an elevation of the building being one of the ends thereof extending from A to F, 34 feet, divided by a wall B, into two parts by a shelving roof, the part from A to B is intended merely as a receptacle for manure, the other part from B to F is properly the feeding house. The length of the whole building is 50 feet. The height from B to H 14 feet, from A to G $7\frac{1}{2}$ feet, from F to I 6 feet. The width of the feeding house from B to F is 19 feet, inside measure, the stalls are each 12 feet long by 4 feet two inches wide. A gang-way of near $3\frac{1}{2}$ feet will be at the heads and tails of the cattle leading from the doors C E. The first of which is for the egress and regress of the cattle, the other for furnishing them with food. Similar doors are also at the opposite ends of the building.

Running water is supplied to the cattle in troughs whenever they please, and they have also mangers and racks for hay. The cattle lie upon wooden platforms perforated for the moisture to pass through. At the back of the feeding house from A to B is the covered dung pit, into which all the urine runs, and into which the dung is to be pushed through apertures in the wall B, each of which apertures is two feet square, and is between every two stalls. M is a folding wood flap or window, of which there are twelve, to give light and air to each stall.

In Mr. Johns's feeding house, the walls B D F are built of stone, the parts N O above the door-way are made of wood, and the roof is made of larch wood by way of experiment to prove its durability, but it is probable that brick and slate will in most cases answer best for the purpose.

The dung pit from A to B is about twelve feet wide, it is sunk some feet deep in the earth and extends the whole length of the building.

OBSERVATIONS OF MR. MIDDLETON'S ROTATION OF CROPS.

To the Editor of the Agricultural Magazine.

SIR,

I Entirely agree with your Correspondent, John Middleton, in principle, in "the rotation of crops," which he recommends in the last Number of your Magazine, page 323, namely, that of "*two green or root crops for one of corn.*" For, surely it is the only way to gain any thing great and valuable from our land, to keep it *up to*, if I may use the expression, or, *rather above*, its work. And when this is the case, every thing which we sow is placed almost beyond the

influence of circumstances or seasons : every thing which we sow is brought to its full perfection, and to its utmost extent both of quantity and quality. When this is the case, as Mr. Middleton properly observes, his rotation of crops may either be continued or not, may either be varied or not, and without disadvantage. But adopt the opposite plan, of raising a long succession of corn crops, and every process of the wisest system of culture will be rendered either ineffectual or destructive. Thus far I can proceed most cordially with Mr. Middleton in his *generals*, but in all his *particulars* I cannot join issue with him.

In each variation of his "rotation of crops," Mr. Middleton recommends the sowing of *spring wheat*, which is a species of crop very ill suited to most parts of this island, and peculiarly unfit for the adoption of farmers in the northern counties. When this crop is resorted to, my bold assertion above recited, respecting circumstances and seasons, must instantly be withdrawn : for in this instance every thing will depend upon seasons, and nine seasons out of ten will prove unpropitious to spring sown wheat in almost every situation. For if the season is very encouraging to the crop, there is great danger of reaping little besides straw ; and if the season is harsh and unfavourable to vegetation, spring wheat will seldom ripen early enough to be harvested in time and in perfection. There are, I allow, very many farmers who have occasionally, and through necessity, adopted this crop, but there are few found, I believe, that will be prevailed upon to repeat it when no such irresistible cause exists. I should like to see a substitute for this crop pointed out by this intelligent agriculturist.

Mr. Middleton at the conclusion of his "second rotation on medium and strong loam," advises us to sow with barley or oats "a large portion of white clover, some of Peacey's rye grass and other grasses to continue." Now I have reason to think from what I have seen, and from what I have read in a prior Number of your Magazine, respecting that hardy and coarse grass, called Peacey's rye grass, that if it is sown together with white clover and other grasses, which are all so much more palatable to sheep than itself, that they would obtain so decided a preference as to be eaten bare to the roots, whilst this unpalatable grass would be left untouched, and restrained from running to bent and to seed. The farmers who are best acquainted with this very strong, sour, and early variety of rye grass, never sow it together with any other kind of grass but broad clover, which is nearly as unpalatable in the estimation of sheep as itself, and then both are eaten freely, when there is no other more delicious species of food to take their fancy. Mr. Gibbs, of Piccadilly, Seedsman to the Board of Agriculture, exhibited, at Lord Somerville's shew of

cattle, what he called an improvement upon Mr. Peacey's rye grass, and which he said was a much sweeter grass, but not quite so early.

I highly approve of Mr. Middleton's plan of eating, or as it is commonly termed, spending the whole of the root crop upon the land which produced it, his proceeding so far upon this principle as to chop to pieces every turnip upon the spot rather than carry one off to be eaten elsewhere, discovers a just and genuine notion of true husbandry, although perhaps there is very little real manure in the turnip itself.

I am yours,

A BUCKINGHAMSHIRE FARMER.

STRICTURES ON THE CROSSES OF SPANISH WITH ENGLISH SHEEP.

To the Editor of the Agricultural Magazine.

SIR,

YOUR Correspondent Nehemiah Bartley has of late, through the medium of your Magazine, made repeated advances in prosecution of his favourite scheme, the demolition of what he calls the prejudices of such breeders as prefer large to small stock. He has proceeded thus far without check, without opposition, and I hope without particular notice, as his plan is most assuredly pregnant with mischief. But, as I have already undertaken a refutation of arguments of a similar tendency with those advanced by Mr. Bartley, I shall not suffer him to proceed further unopposed. Not Sir, because I think his reasoning irresistibly mighty, or likely to make any deep impression upon the minds of practical farmers, but that having a certain degree of plausibility attending it, and the charm of novelty to recommend it, and coming from the Secretary of so very respectable an institution as the Bath and West of England Agricultural Society, it may have considerable weight with the incautious and inexperienced breeder.

Mr. Bartley and his coadjutor in the cause, Dr. Parry, found their theory upon what all the world besides esteems *false principles*. They make that a primary object which ought only to occupy a secondary station. *Wool*, with them, is an object of the *first consequence*, whilst *mutton* is only of *inferior moment*. And not only wool, but the *fineness* of wool, is a consideration, in their esteem, of sufficient weight to induce them to sacrifice quantity of mutton to quality of wool. Nay, they proceed so far upon this principle, as to boast of the very diminutive weight of the carcasses of their sheep. They reckon likewise upon the false principle, that *small stock* will invariably require a proportionally small time, and small quantity of food, in fattening. But it is not my present

intention to examine all the arguments adduced by Mr. Bartley on this subject in his various letters inserted in your *Miscellany*, and in the *Gentleman's Magazine*; for on many of the points there agitated, Dr. Parry and I are already at issue, and I shall reserve myself, therefore, for the free consideration of certain answers which the Doctor pledged himself, six months ago, to make "to all the questions which I had proposed to him." I shall, however, take the liberty of animadverting on certain passages in Mr. Bartley's Letters in which he does not exhibit a strict obedience to the rule which he has laid down for others, in your *Magazine* for the month of October last, page 264, when he says, "it is from a temperate collection of sentiment, that the truth may be not unfrequently established."

Mr. Bartley, in certain Letters to Charles Henry Hunt, Esq. which, for some reason or other, were sent to the Editor of the *Gentleman's Magazine*; and inserted in the month of November last, makes the following assertions in commendation of his crosses with the Spanish breed of sheep. "These crosses," says he, "will produce more and better mutton, and more and better wool than any native English sheep." This, I say, is neither temperate nor true.

"I am warranted," says Mr. Bartley, "from my own experience, in conjunction with his Lordship's sentiments, (meaning Lord Somerville,) in concluding that an acre of pasture (rent 25 to 30 shillings) would well support through the year, ten Ryeland ewes." These ewes, the reader is to understand, are to be accompanied with a lamb each, and thus, whilst twenty mouths are constantly at work during the summer upon one acre, what can possibly remain for the winter sustenance of these ewes? Every experienced man knows full well that sheep thus hardly kept will lose the whole of their coats before the end of winter, if not their lives likewise.

Mr. Bartley states the weight of the fleeces of these ten ewes to be "four pounds each, and ten multiplied by four, says he, will be equal to 40:" and then triumphantly adds "let any other sort," (upon an acre of land,) "produce 30 pounds if they can." Now, at the time when he wrote this letter he must have known that two Lincolnshire sheep, exhibited at a prior Wooburn sheep shearing, produced fleeces which weighed together 35 pounds, or 17½ lb. each. And I insist upon it, that two Lincolnshire sheep will by no means consume and destroy so much food as four of the Spanish cross-breed will. Allowing, however, only four of the Lincolnshire sheep to be kept on the same quantity of land as the ten Spanish crosses are pastured, and each to produce wool in the above proportions; then, even in this case, from the Lincolnshire breed we shall

receive 70 pounds of wool, and from the crosses only 40. But when the quantity of the fleece of every sheep depends so much upon circumstances, and varies so much according to its *keep*, that the same individual may be made to produce two or eight pounds of wool, as I can easily prove, if called upon, will take place, nothing decisive of the point in question can be ascertained from the representation of a few particular cases: especially as Mr. Bartley's sheep are always kept in high condition, for certain private reasons.

Respecting the boasted *quality* of Mr. Bartley's wool I shall make no remark at present, but shall presume to ask one simple question, which I have already proposed to Dr. Parry, and which he has not yet found it *convenient* to answer, i. e. how comes it to pass, that Mr. Bartley's wool, which he pronounces to be equal in quality to real Spanish wool, only sells for less than one half the price of the Spanish, or that the former only fetches 3s. 2d. per pound, when the latter brings 6s. 6d. per pound?

If Mr. Bartley is desirous of a *free* as well as a "temperate collection of sentiments" on the subject of wool, I cannot think that he would have had recourse to the sacred shield behind which he has placed himself, when he says, in his second Letter in your Magazine for the month of April, page 250, "it was the king that about twelve or fourteen years ago first introduced the *subject* of improving British wool, by interbreeding with Spanish sheep." Such authority, I think, should never be interposed in the discussion of a subject which concerns the community at large; and I was much *surprized* to see Dr. Parry availing himself, in his book, of this inviolable species of shelter.

The remaining part of the above quoted sentence is at least bold and animated: "and if *it* were pursued, says Mr. Bartley, with all that degree of energy which I conceive it well to deserve, I cannot but persuade myself it would prove of advantage to the country, equal in value at least to all the improvements in our rural economy taken together, that have been successfully introduced during the same period." Now it is evident from this strong expression, that Mr. Bartley either rates his own achievements excessively high, or "the late improvements in rural economy" extremely low: but I am rather inclined to think, that he reckons chiefly upon the former, from what follows. "And the example," says he, "is now rapidly advancing in all quarters inasmuch that the opposing forces of prejudice and mistaken interest are well nigh about to subside." I will venture to affirm, that the example here alluded to, is not rapidly advancing in all quarters. It is not advancing amongst that class of men called the common farmers, who have, and who always must have the chief

management of our rural economy; they will never become blind enough to their true interest to sacrifice carcase to fleece, or size and symmetry of animal, to quality of meat.

But, Mr. Bartley does not confine his refining or reducing system to sheep alone, but extends it to cattle likewise. And he maintains his positions by a new analogical mode of argumentation. Sheep, says he, are more profitable than cattle: but sheep are profitable from their smallness: therefore the smaller cattle are more profitable than the larger cattle. If this be allowed as a legitimate syllogism, and the datum be granted him which he has assumed, we shall, perhaps, soon hear of his having recommended it to dairy-farmers to stock their land with ewes instead of cows, and that the milk of the former is of a very superior quality to that of the latter.

In support of his system Mr. Bartley proceeds, page 251, to bring against the breeders of former times, a charge which I do not believe he can support by evidence. "Previous to the time of the celebrated Mr. Bakewell," says he, "hugeness of size and bone, were pretty universally considered to have been the leading criteria of perfection, but now the advocates for the smaller breeds of our domesticated animals are rapidly increasing." I will not grant that there ever was an *experienced* grazier or farmer, either before or since Mr. Bakewell's time, who ever said or thought that a beast that was huge in bone was more valuable than one of the same size that was fine in the bone. I challenge Mr. Bartley to produce an instance in confirmation of his assertion. This is one of those unmerited but very common charges which are thrown out by most agricultural writers, against former men and past times, merely to enhance the value of modern discoveries, and sometimes modern innovations. If Mr. Bartley's improvements of the breed of English sheep by crossing with the Spanish, should prove of no greater advantage to the farmer and to the public than the dear bought ameliorations of Mr. Bakewell have been in our cattle stock, his country will lie under no vast weight of obligation to him. Mr. Bakewell mistook the first object of a breeder of cattle; and in my opinion, Mr. Bartley and Dr. Parry have erred in like manner, in their system of breeding.

I shall not venture, at this time, to meddle with the contents of Mr. Bartley's Letter, which appears in the last Number of your Magazine, but shall reserve my animadversions till another opportunity may offer,

Yours,

PRACTICUS.

A METHOD OF PRESERVING CABBAGE PLANTS FROM THE FLY AND THE SLUG.

To the Editor of the Agricultural Magazine.

SIR,

Fakenham, June 9, 1803.

A Few days since I planted a small quantity of the Drum-head or Cattle Cabbage, and was not a little vexed and disappointed at finding many of them eaten, and some nearly devoured by its two fatal adversaries, the *Fly** and the *Slug*†, the former attacking it by day, and the latter by night. I soon perceived that the evil was spreading wider, and I began to be alarmed for the safety of my whole crop. I therefore determined upon making an experiment which I had long weighed in my mind, and which I am happy to say, has fully answered my hopes. On each of the injured plants, which were at the same instant almost covered by the fly, I gently sprinkled with a brush a few drops only of *train oil*. The effect upon the flies was instantaneous, for they all fled, nor has one since returned; and for three mornings past I have not discovered that a single leaf has been touched by the slug. The operation of sprinkling every plant with oil, singly, is too tedious a process to pursue in general: perhaps, if the plants were drawn over night from the seed-bed, and each bundle of five hundred were carefully moistened with about half a pint of oil, and planted next morning, the nauseous smell and taste would be communicated to all the plants equally, and the effect would probably be the same. I do not recollect that Dr. Hunter in his excellent Essays has mentioned any particular benefit arising from his oil-compost, with respect to protecting plants from insects: if it has this property, it would prove an inestimable manure for all kinds of plants subject to the canker, fly, or slug, and for turnips in particular, which no experiment hitherto made, has been able to guard from that most destructive of all its enemies the fly.

I shall be truly glad to hear from any of your Correspondents that they have tried the remedy I have proposed, and whether the result has been equally fortunate with them as it has been with me.

I am, Sir, yours, &c.

AGRICOLA NORFOLCIENSIS.

* Called by Marshall, in his "Rural Economy of Norfolk," the *Tenthredo of the Turnip*.

† I much doubt whether it is not the large dew-worm; at night on walking to the plants, I have perceived some hundreds withdraw themselves into their holes very near the cabbages, and in the morning I have found two or three smaller plants quite pulled up by the roots and drawn half way (italk foremost) into their dens.

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9 I

OXEN, IN COMPARISON WITH HORSES, FOR THE PURPOSE OF DRAUGHT, AT THE ROYAL FARMS.

To the Editor of the Agricultural Magazine.

SIR,

THE cause of oxen, cannot be supported against horses, by such accounts as are published by Mr. Kent and Mr. Young. The comparative statement, in the Annals of Agriculture, volume 32, page 168, either has not been drawn from authentic documents, or it is not fairly made. Mr. Young, or Mr. Kent, for it is not clearly expressed which of them is the writer, says, in page 167, that statement represents what was the expence of horses, and what is the expence of oxen. The next two pages contain the account, even to the day of the month. Now these expressions are calculated to induce their readers to suppose horses had been employed during several years, and were superseded by oxen, who have worked a sufficient time, to ascertain the expence of labour, performed by each of these teams. If this were true, the dates of the expence of labour, done by horses, would have been five or seven years antecedent, to the dates of the experiments by oxen. But, unfortunately for the writer of such a misrepresentation, the accounts of horses and oxen bear the same date, which proves at least one of them to be as imaginary, as the subsequent part of this paper will shew them to be fallacious.

The author of that statement, cannot produce books of real business, from which the account in pages 168 and 169 is said to be drawn, which would warrant any such conclusion as is there adopted. I thus publicly call on him to produce it if he can, otherwise he will justly be suspected of writing, with the intention of misleading the general opinion.

The agricultural world ought to be made acquainted with the manner in which comparisons are made, between horses and oxen on the royal farms. The farm at East Sheen, lies at a short distance from my occasional residence, and consequently, I have some opportunities of seeing the manner in which it is cultivated. At that place, there are four Norfolk ploughs, which most people know are very light; each of them are drawn by four oxen, and there is one Berkshire plough, which is known to be one of the heaviest in Britain, drawn by two horses. The oxen are the most fit of their kind for the purpose of draught, and the horses are the least fit for it. The horses are not the chesnut punch from Suffolk or Norfolk, nor are they the Yorkshire one-third, or one-half blood, but they are of the sluggardly black breed; and even two of these slow paced horses, are studiously loaded with one

of the heaviest ploughs in the kingdom, in order to retard their pace, and prevent their walking faster than the ox-teams. Each team of four oxen draws a feather, and the two horses are made to draw a ton. Under these circumstances, the ox-teams are said to keep pace with that of the horses. Business conducted in this manner, is evidently contrived for the purpose of deception; the author of it ought to be known to the public, and to his Majesty, that he may be disgraced as he deserves.

I shall not, in this place, enter on the comparative expence of horse and ox-teams, otherwise it would clearly appear to be more economical to use horses than oxen, in ploughing that farm. Four oxen, one man, and a stout boy, in one case, do accurately as much labour as two horses and one man in the other; the latter is evidently a team of the less expence, and I believe it to be so, at least to the amount of the keep of two oxen and a boy, which, at the present price of labour and clover hay, is equivalent to 100*l.* per annum.

I am, yours, truly,

Lambeth, May 20, 1803.

JOHN MIDDLETON.

ON RURAL ECONOMY.

To the Editor of the Agricultural Magazine.

SIR,

IN the Fifth Essay on Rural Economy, signed Wheat & Sheaf, published in Number 45 of your valuable Magazine, it appears a paper must have slipped out before it was sent to the press, therefore I beg you to insert the following to supply that part of the Essay between the two paragraphs, page 287, line 10 and 11, as thus:

When or before the proper regulations are established for the business of the herdsman's farms to commence, the landlord, or some person for him; should undertake that the land be duly inclosed and properly drained where wanted, with plenty of water secured, or a proper well dug, and pump fixed in the most convenient spot on the estate, water being essentially necessary for the stock; at the same time, two cottages must be built for the herdsman and their families, and an interest equal to these expences must be added to the rent. Then to complete the introduction, some substantial farmer should be applied to in the neighbourhood who should undertake to fallow and manure the land, according to agreement, that it may be in condition to bear a crop of turnips; or any green feeding crop, as may be thought best for the purpose of being eaten off upon the land by the farmer's stock, or those he may prefer the profit to his own use; these and other necessary observations should be properly secured before the

herdsmen can take possession of the land, for they must not commence their operations and buy the stock until it shall appear the land will bear the feeding crops; and very likely it may require two years to accomplish this necessary part of the business, that is two years for feeding crops before the herdsmen are established; also the restrictive clauses by Parliament must be looked to for corresponding with present laws and usage, and tending to the improvement of the system.

These and other circumstances respectively being secured, there afterwards will be no doubt for the success of the plan, if honestly conducted, for from the reciprocal productions of the crops and animals, the land must improve, grow rich, and the weeds be destroyed; but without beginning by the above precautions, the herdsmen would be bewildered, and not know how to conduct themselves, for food without stock, or stock without provisions to keep them, would soon end in the total destruction of the system. Take the experience with the opinions of every agriculturist, and they will each readily concur, that arable land naturally of a kindly soil, though poor and unproductive, when it shall be thrown under better culture, where there is to be plenty of *manure*, such land must increase in value to the double of its rent at the expiration of 21 years, for when explained it will satisfactorily appear that each acre of land is in a constant employ, half with green crops through the year, which must destroy the weeds, and will be under two very copious foldings in every two years.

We are gone far enough, I hope to prove the landlord must be benefited by the value of the land improving; the state enriched, as more than double the quantity of provisions will be produced annually, and sent to market; the herdsmen made happy by securing an establishment for themselves and families, with many other advantages to the community, and no person injured thereby, each concerned finding reasonable cause for content.

Now follows what may be the proper rotation of crops suiting the system, and which has appeared in Number 45.

I am, Sir, your obedient servant,

May 20, 1803.

WHEAT & SHEAF.

ESSAY ON THE DISEASES OF SHEEP: DRAWN UP FROM COMMUNICATIONS FURNISHED BY DR. GILLESPIE, PHYSICIAN IN EDINBURGH; TOGETHER WITH HINTS BY DR. COVENTRY, PROFESSOR OF AGRICULTURE IN THE UNIVERSITY. WITH NOTES, SUGGESTED FROM OBSERVATIONS IN TWEEDDALE, &c.

(Extracted from Findlater's Survey of Peeblesshire.)

IT is supposed by those who have best access to information on the subject, that the island of Great Britain contains about thirty millions of sheep; and that of these, from three

to four millions annually die of disease. Were we to average the large sheep in England, with those of less value in Scotland, the annual loss, from this cause, would not be less than from two to three millions sterling : a loss which is certainly of very serious concern to the nation at large, as well as to individuals. The mortality of sheep, by disease, is more than double that of the human race—if we abstract, from the latter, the waste occasioned by wars, and by the accidents incident to commerce and navigation. It must therefore appear to be an object of great national importance, to investigate the means of preventing, or curing, the diseases to which sheep are exposed.

In the following Essay, we do not pretend to offer a perfect treatise upon the subject. All we aim at, is to give a short catalogue of the various diseases, and to suggest, under each article, the most obvious means either of prevention, or of cure. On a subject which has never been scientifically investigated, mistakes are unavoidable ; and these we leave to be corrected by the candour of the reader. Most authors who have treated of the diseases of brute animals, have stuffed their books with a long series of nostrums and prescriptions, where the ingredients are excessively complex, and which either do not mix, or destroy each other's effect. We shall endeavour to avoid this error ; and leave all doubtful cases to future investigation.

Some diseases are peculiar to lambs, and others to sheep at a more advanced period of life.

Lambs are subject to

1. *Diarrhæa, or Looseness.*

This disorder is commonly called, by the shepherds, *pinning* ; because, when the purging has advanced a certain length, a glutinous matter flows from the anus, which fastens down the tail to the hips, and prevents any farther passage. When shepherds observe this, they commonly seize the lamb, and having washed and disengaged the tail, they rub the parts with the earth of a mole-hill, or other powdery matter, to prevent the tail from sticking in future. Hogs lard, or sweet oil, would answer much better for this purpose. The disease is caused by wet and cold in spring, together with the ewes eating too greedily of soft moist grass. Removing them to heathy, or poorer pastures, where astringent or aromatic plants abound, prevents, or cures the disorder.*

* Among lambs, fed with their dams, upon the rich improved pasture of Lothian parks, *pinning* never occurs ; whence, it is probable that it originates from milk concocted from poorer pasture, which gives more curd than cream to the milk, rendering the excrements of the lamb more viscid. When the mothers have little milk, the lambs are very rarely *pinned*. *Pinning* is therefore considered as a favourable symptom of the lamb's being well nursed.

II. *Cholic, or Bursting.*

This disease is incident to lambs, from surfeiting themselves with an excess of milk. Shepherds call the disease *bursting*; because the milk, apparently, ferments in the stomach; and, by the disengagement of gases, the intestines are burst. It seems perfectly analogous to the cholic in cows, arising from an excessive feed of red clover in a wet state. The ewes acquire this fatal excess of milk, by feeding too freely upon soft succulent grass in spring. The evil may be prevented or cured, by removing them, for some time, to a poorer pasture.

III. *Vermin.*

There are three species of insects which are very hurtful to sheep. 1. The *sheep-fly*, which abounds chiefly in the southern parts of the island, and is most troublesome to lambs. Smearing with rancid oil of any kind, seems the most effectual remedy against its attacks. 2. Maggots, the *astrum ovis*. These are flies in their chrysolite state, and arise from eggs which flies have deposited, probably in some small boil, or diseased part of the animal's skin. They eat into the parts where they are fastened, produce ulcers, teaze, and at last destroy the life of the animal. The parts infested should be clipped bare, and washed repeatedly with black soap and warm water. Lastly, the parts may be covered over with the common smearing ointment. If this does not operate a perfect cure, recourse may be had to the means just now to be mentioned. 3. Ticks, or keds, the *hypobosca ovina*. The smearing ointment generally prevents, or kills this insect. But if this

It is not considered as a *disease*, in Tweeddale; though, if not redressed, it would be productive of disease. It is considered as an *accident* to be guarded against; and which, like other accidents to which sheep are liable, requires the shepherd to be constantly walking through his flock. No Tweeddale farmer would, on this account, remove his ewes and lambs to poorer pasture, where the lambs would be worse nursed; as he knows, that if the *pinned* lamb is timeously noticed, and relieved by pulling up the tail, all danger is removed.

Falling awald, is another *accident* which must, in like manner, be guarded against. When ewes heavy with lamb, or sheep that are fat, or even merely full fleeced, fall, or lye down upon their backs, in a hollow, or even upon flat ground, they will often lye in this position, if not disturbed, or set upon their legs, till (in consequence of the swelling of the belly, which speedily takes place, if the weather is hot, the belly full, and the position be with the head down hill) death ensues: if not raised, they soon become incapable of raising themselves, and will often die in the space of half an hour; the contents of the swelled abdomen probably obstructing the motion of the lungs, or the brain being apoplectically compressed by the over-distension or rupture of the blood vessels of the head. The fell, ever-watchful, and far-seeing raven, is always ready to attack them in this helpless situation; tearing out, in a few moments, both their eyes and their tongue, even before they are dead. When set on their legs before the belly has swollen very much, no harm ensues.

C. F.

should not happen, or if the sheep are not smeared, insects of every kind may be effectually killed, by slightly rubbing the parts affected with mercurial ointment, composed of three ounces of hogs lard, rubbed up with half a drachm of finely powdered corrosive sublimate. To this ointment, may be added a little of the spirit of turpentine. Coal-oil is powerfully destructive to insects of every kind; but whether it may not prove injurious to the health or fleece of a sheep, has not yet been ascertained by experiment. A decoction or distillation from the gall-plant, which abounds in many mosses and muirs, is known to be very fatal to insects of every kind; and a sheep may be safely washed with this juice. The juice of tobacco is also much recommended as a poison for those insects which infest sheep.

The two last species of insects are chiefly hurtful to sheep of a year old, or more; and the diseases which follow, are chiefly confined to sheep of this description.

IV: *Scab, or Itch.*

This disease is incident to sheep in some particular pastures, situations, and seasons, more than to others. The predisposing cause, seems to be a relaxed habit of body, produced by poverty, or leanness: though some sheep are subject to it that are fat, and otherwise in good condition. The disease seldom seems to originate with such sheep, but to be conveyed to them by infection. Sheep that are regularly tarred, or smeared, we believe, are seldom infected with this disease. If the disease be partial, perhaps the best remedy would be, to clip the affected parts as bare as possible, and rub them occasionally with the common smearing ointment, to which may be added a little Venice turpentine. They should also be washed, once or twice a week, with black soap and water. But if this prove ineffectual, or if the disease has gone to a great extremity, the animal should first be washed as clean as possible, in a pond or rill of water, to purge away all the accumulated virus, or infecting matter, from the wool. A little black soap may be of great use in washing. Then the whole body may be smeared with juice of tobacco; and, after the animal becomes dry, may be rubbed with butter mixed with powdered brimstone:—or brimstone, mixed with the smearing ointment, would answer better. A little of the sulphur may, meanwhile, be thrown down its throat. If this treatment, being twice or thrice repeated, after an interval of several days, should prove ineffectual, recourse must be had to the mercurial ointment formerly described, composed of three ounces of hogs lard, well rubbed in a mortar with half a drachm of finely powdered corrosive sublimate:—or the same proportion of corrosive sublimate, well mixed with three ounces of the

common smearing ointment, will answer equally well. The animal being smeared with this ointment, will soon be effectually cured. Meanwhile, the diseased animal should be invigorated, by being put upon substantial food.*

V. *Braxy, or Sickness.*

This disease is of an inflammatory nature; and there are three species of it, which are very different from each other. These are,

1. Inflammation of the bowels, commonly called dry-braxy, is most fatal to young and robust sheep, about six or seven months old, called in many parts of the island, *hogs*. It is more destructive upon some farms, than others; and, even upon these, in one season more than another. In a *hog-fence*,

* John Lock, Esq. of Rachan, observes, that it would be proper to add to this account of the scab, that the matter discharged, mixing with the wool, and drying, forms a hard, impenetrable crust, which he has observed of half an inch in thickness; that it is vain to think of curing it by any external application, till this is removed; and that you might as well attempt to cure a man of the itch, by rubbing butter and brimstone upon his coat, instead of his naked skin. That the scurf, thus formed, must be removed, by soaking and washing it with warm lime-water and soap, and scraping it clean to the quick with a blunt knife. It may then be successfully cured by the ointment mentioned in this Essay; or (which is a more cleanly and easier-formed remedy) by dissolving half a drachm of the corrosive sublimate of mercury in a chopin bottle of whisky and water, and washing the parts repeatedly with the solution, which he has always found effectual upon two or three applications.

Except the *breakbaw*, or dysentery, (Article VIII. of this Essay,) the scab is the only disease from which communication by infection is dreaded in Tweeddale; and here, the danger of general infection of the whole flock is greatly to be feared. It seems not a very deadly disease; but, from the constant disquietude in which it keeps the animal, from the perpetual itching, it effectually prevents its fattening, besides making it lose its wool. When it has thoroughly pervaded a flock, it is very difficultly eradicated. The ground itself becomes infected; and it communicates the infection even to a sound flock brought upon it. Every broken piece of ground upon the hill sides, presenting a perpendicular or overhanging face, against which the infected animals can rub their backs or sides, becomes charged with the infecting matter, which readily communicates the disease to the sound sheep, who delight also in rubbing themselves. Besides curing the infected animals, care should also be taken to beat down the infected surface of these rubbing places, else the animal is only cured to be infected anew. If the ground abounds with projecting rocks, the surfaces against which the sheep rub themselves, should be carefully washed. After all, the safest course is to sell off the infected stock to the butcher, and replenish with black cattle for a season; when, if the infecting matter consists of animalcules, as is supposed of the human itch, a winter's frost would probably destroy them.

A sort of itch, though seemingly noway inveterate, almost always attacks sheep, when first set to feed upon turnips. It is easily cured, by immediately anointing the infected parts with a liquor composed of turpentine, with decoction of tobacco, and ashes of broom, being that commonly used in this county.

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or pasture, capable of keeping thirty score of hogs, there is, some years, a loss of from three to four score. This disease begins at those times when inflammatory disorders are most apt to prevail, in the months of October and November, and is produced by the common causes of inflammation, cold, exertion, external injury, &c. During these months, slight frosts set in; and the ground, in the morning, is often covered with hoar frost, or what is called, in some parts of Scotland, *rhime*. It is probable, that eating grass covered with hoar frost, may be one cause of the disorder. If so, moving the animals about, and preventing them from eating, until the frost is melted by the sun, may tend to prevent the disease.

This disease runs its course very rapidly. When the shepherd leaves his flock at night upon their layers, he sometimes observes a hog look dull, loitering behind, and restless; sometimes lying down, and suddenly getting up again: and, in the morning, he will often find it dead, or nearly so. At other times, he will discover no apparent ailment among his flock; and, in the morning, he may find one or two dead, or dying. From this it appears, that the disease is very acute, and of the inflammatory kind.

This is farther evinced by the appearances after death, when the carcasses are opened. Their bellies are excessively swelled, and distended with a putrid gas: the whole intestines being red and inflamed, gangrenous, and in some degree mortified. This putrid taint seems to be communicated to the whole carcass, as all the muscular parts, and fat, smell strongly of corruption. The hogs that die of this disease, are frequently fat and in good order; which shews that the disorder is of short duration.*

We have already mentioned the eating of grass, which is covered with hoar frost, as a very probable immediate cause of this disorder.—But is there any predisposing cause?

* John Loch, Esq. of Rachan, observes, in general, in regard to the sheep, that it is an animal of a very covetous habit, discharges little urine, and that so acrid, as to burn up grass like a solution of volatile alkali, it drinks little, and perspires much of a gleety or greasy nature, as is perhaps the case with all fur-bearing animals: hence, all its internal diseases are highly inflammatory, and run rapidly into a state of putrefaction, proving quickly mortal: hence, its natural economy is easily disturbed by wet seasons, whilst it gets nothing to eat but wet grass; its body, meanwhile, being covered with its wool, drenched like a wet sponge. The comparative health of *pet-sheep*, or those feeding and housed with cows, at all seasons, he attributes more to covered shelter from the weather than to superiority of feeding; and has therefore resolved to make all his sheep *pets*, in so far as to provide them with shades, to retire to in coarse weather. From the natural constitution of the sheep, he is of opinion, that more is to be expected from attending to the *rationale* of their management, the *juvantia* and *ledentia*, than from medicine, which can rarely be timeously administered.

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In answer to this question, we shall adduce a fact, which is well authenticated.—Many parts of the Western Highlands of Scotland had been for ages occupied by horses and horned cattle. At the introduction of sheep into those districts, the best grass was that which had sprung from the tath and excrements of these animals. During many years after these districts were converted into sheep farms, braxy remained unknown. It crept in at last, and the severity of the disease was long, in proportion to the length of time the pastures had been occupied by sheep.

From this we would infer, that pasturing upon their own tath is a predisposing cause of braxy among sheep; and that a frequent alternation of the species of stock, upon every sheep pasture, might serve to prevent the evil. This idea corresponds with the general laws of the Supreme Being, who certainly never intended, that this earth should be monopolized by any particular species of animals; but has so ordered matters, that the happiness of individuals shall result from the happiness of the whole family of animated beings.

Hence, it would appear a beneficial practice in store farmers, in place of one hog's fence, to keep two or more enclosures of this description, and change the stock upon them every season. This we know to be contrary to general practice; and that what is called the *hog's fence*, is carefully guarded against the intrusion of every other animal.*

* In regard to the quality of pasture, as the cause of *sickness*, Tweeddale farmers seem of opinion, that it arises from the *foulness of the grass at the root* in the hog fences, which are never eaten bare. Some, therefore, take care to have the land, to be sowed for the hog fence, once eaten as bare as possible early in summer, by the black cattle upon the farm, or by old sheep.

It seems ascertained, in Tweeddale, that land which has been in use to be pastured by older sheep, when converted into a hog fence, is not liable for some time to produce sickness. Two accidental experiments occurring, in which this practice took place, in consequence of new arrangements, in the farms of Harehaup, in Eddlestone parish, and of Lyne, in Lyne parish, confirm this conclusion. It is farther confirmed, by an experiment of Mr. Murray, tenant in Flemington mill. About twenty years ago, he bought in different parcels of lambs for hogs, and laid them upon the hog fence, of his hog-farm of Broughtonhau, in Broughton parish: in one of the parcels, of much higher condition than the rest, the sickness broke out to such extent, that they were dying at the rate of two or three daily; so that the whole parcel seemed in imminent risk: he transferred this whole parcel to the farm of Fingland, in Newlands parish, where only old sheep are kept, putting them on some of the lower pasture of that farm, which had been hained for feeding the crock ewes, and transferring a proportional quantity of these ewes to Broughtonhau hog fence;—not one of the lambs died upon Fingland. To the same effect, it deserves attention, that in small farms, not admitting of distinct hirfelling, where, of course, old and young sheep pasture, mixed together, hogs are very little liable to sickness, though perhaps worse in other respects. These facts correspond with Mr. Gillespie of Glenquich's observation. (See Report, page 196.)

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Lambs, immediately after they are weaned, are frequently sent to poor pasture, which is called *birning* them. Now, this appears to be a very bad practice; for the consequence is, that they fall off considerably, before they get at the rich grass in the hog's fence, of which they eat too freely; and thus become disposed to the disease treated of. Children, and all domesticated animals, are carefully fed with nourishing food, for a considerable time after they are weaned; and yet they fall off for some time. It would certainly be better to give the lambs the hog's fence at once, and use every precaution to prevent them from falling off.

As the disease is generally advanced to a dangerous height before it is observed, we fear that medicine affords but a very faint hope of cure. The disease being inflammatory, the shepherd should attempt to bleed the distressed creature as soon as possible; which he can easily do, by cutting off part of the tail, or by nicking it underneath, or by cutting off part of the ears. The animal should then be removed to a house, or shed, and attempts made to produce evacuations. In brute animals, it is difficult to produce these by medicines administered by the mouth. The speediest and most effectual method is; by injections into the rectum, or anus. Such injection may consist of a small handful of camomile flowers, two tea-spoonfuls of anise seeds, and as much carvey seeds; to be boiled slowly in a Scottish mutchkin, or English pint, of milk and water, until the half is evaporated. The liquor should then be strained off, and two tea-spoonfuls of castor oil added: or, if this is not at hand, the same quantity of good sweet oil may be used. This should be administered warm, by an injection bag and pipe; or by an elastic gum bottle, with a pipe properly fitted. Nothing can be easier, than to give a sheep a clyster in this way; and, in all probability, it will have a happy effect, in evacuating the bowles, and procuring relief.

If this does not operate very soon, it may be repeated an hour after, and a large tea-spoonful of common salt added to the former ingredients. If, after all, the animal does not seem relieved, another clyster may be given, consisting of a small tea-cupful of warm milk and water, to which are added from twenty to twenty-five drops of laudanum.*

* When physician to the army, I found inflammation of the bowels a very common complaint. It was attended with costiveness, and a large quantity of air was generated in the stomach and intestines, which was highly distressing to the patient. Each of the following clysters I found of great use:

Warm water, or water gruel, eight or ten ounces; Castile soap, two or three drachms; Glauber's purging salts, half an ounce; salad oil, one ounce. Mix, and to be thrown up the rectum.

If this did not procure a stool in the space of an hour or two, it was repeated.

As there is a great distension of the stomach and bowels, arising from gases, or elastic vapours, generated in the intestines, Mr. Walker, of Cumberland, in the treatise he wrote upon the diseases of brute animals, has suggested a remedy for this disorder, which has often proved successful in his district. It consists in pushing down their throats a flexible tube, such a Dr. Monro has recommended, and which has proved successful in relieving cows that had over-gorged themselves with red clover early in the season. This seems a probable means of affording temporary relief; and every shepherd that has the care of the hog flock, should be furnished with one of these tubes, adapted to the size of sheep, for trying the experiment upon those hogs that labour under the disease.

2. *Watery Braxy*.—This differs, from the former respecting the seat of the disorder, though the effects are nearly the same. It is analogous to the suppression of urine, a disease frequent among females of the human species, and caused by their sedentary habits. Watery braxy consists in the bladder being overdistended with urine, which raises violent inflammation in that organ, and produces an incapacity to discharge the urine

When the patient had had a stool (within two or three hours after) I used the following:

Warm water, or water gruel, ten ounces; nitrous æther, two drachms; salad oil, one ounce; and if there was pain or uneasiness, I added to it forty, fifty, or sixty drops of laudanum.

Wm. H. Mathews, M. D.

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From November, at smearing time, till the Christmas (this year 1797,) two facts, in regard to the mode of cure, have been stated to me, and which, I am disposed to think authentic.—In the farm of Drummelzier, parish of Drummelzier, three hogs (out of four upon which the experiment was tried) recovered, upon bleeding, and having poured down their throats a decoction of tobacco—about a finger's length of twist tobacco boiled in water till the water was diminished to a gill, being the dose for each. In the farm of Broughton-häup, parish of Broughton, within the same space of time, nine or ten (out of sixteen or seventeen upon whom the experiment was made) recovered, upon bleeding, and having an injection of tobacco-smoke administered from a common tobacco-pipe, by kindling the tobacco, inserting the pipe-shank into the anus, and blowing: the experiment, however, was not so successful in some latter instances. I have, long ago, seen a ewe cured by bleeding, and injection of Glauber salts from a common clyster-bag and pipe.—Where braxy breaks out, it might be useful, where attainable, to lay the hogs, nightly, upon dry ground, if the hog-fence is wet; the chilliness of wet ground contributing, no doubt, to the production of inflammation: Clover foggage, or turnip, might be good preventatives, from inducing a lax habit. Mr. Gillespie in Glenquich observes, that saltpetre has been successfully used in the *black mould*, a disease of young black cattle, supposed analogous to braxy in sheep, both as a preventative and cure. His proposal, of taking the hogs from the hog-fence about the beginning of August, and keeping them, from thence till 12th September, upon coarse hill-grass, as a preventative or cure for sickness, would not, it is conceived, answer in Tweeddale, as these grasses are then faded: it might prevent sickness but would induce poverty.

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that is accumulated. The consequence is, that the urine regurgitates over the system; fetid gases taint the whole carcass, as in the former case; the bladder becomes gangrenous, bursts, and the animal dies. Young and vigorous sheep are most liable to this species of braxy, like the former. The immediate cause of the disease, is feeding too freely on succulent diuretic food, and resting too long in their layers in the morning. It has been frequently observed, that this species of braxy is most apt to make its attacks on Sundays; because shepherds generally sleep longer on Sunday mornings, than other days in the week, and, of course, allow the hogs to remain too long in their layers.

This disease may be prevented by avoiding too free an use of succulent diuretic food, and by moving the animals from layers early in the morning, making them walk about for some time, in order to encourage them to pass their urine and purr.

In attempting a cure, it may be known if the bladder is affected, by a great fullness in the lower part of the belly, immediately above the pubis. The seat of the disorder being discovered, a female silver catheter, or one of elastic gum, ought instantly to be passed through the urethra into the bladder of females. This will draw off the urine, and afford instant relief. But this will be more difficult in males, and, if attempted, must be done with a long and properly bent catheter, or bougie. In either case, when this cannot be effected, a puncture may be made into the bladder with a trocar, immediately above the pubis, taking care not to wound the intestines. By either of these methods the urine may be discharged, and the animal relieved.

In other respects, with a view to allay, or prevent inflammation, evacuations should be procured by clysters and warm injections into the rectum, as already described. If the several ingredients we have mentioned be not at hand, injections should be attempted, composed of warm milk and water, nearly in equal parts.

3. *Costive Braxy, or Cholic.*—This is caused by the fæces hardening in, and adhering to the duodenum or rectum, so as to obstruct the passage, and produce inflammation, and consequences similar to those already described. The cure should be attempted by injections and laxative food.

VI. *Sturdy, or Water in the Head.*

This disease is particularly incident to hogs of a year or 18 months old. It consists of a collection of water generally formed upon the external surface of the brain, immediately below the cranium; and sometimes, though not often, in the centre, or ventricles of the brain. When the water forms in

the last mentioned parts, we apprehend it is almost universally mortal.

The disorder is first discovered, by the animal not keeping up with the rest of the flock, and by its appearing dull and stupid. It is afterwards observed to go round in a giddy manner; and at last, it appears blind, and the pupil of the eye seems wide and relaxed. It may continue a long time in this way before it dies; and we believe, sheep sometimes recover of this disease without any thing being done for them. They are often in good order when they die, as they continue to feed tolerably well, until near the last period. Though some recover, with and without means, perhaps it may be most advisable to kill them early in the disease, provided they be in good order; as this local distemper does not affect the goodness of their mutton.

When the collection of a water is on the outside of the brain, it is often cured by thrusting a sharp wire up the animal's nostrils, until it reaches the water, and opens a passage for it to run off. In other cases, it is cured by an operation which some shepherds perform very dexterously. The water is contained in a bladder, or vesicle, generally about the size of a walnut. The part of the skull, immediately above where it is situated, feels softer than other parts. This the shepherd discovers, by pressing with his thumb and fingers upon different parts of the fore and upper parts of the skull. The bone here has become thinner, and feels soft; from which, he is certain that the watery collection is formed. After the disease has gone on a considerable time, and he judges it is ripe for the operation, he raises the scalp, and lays the bone bare to a sufficient breadth, with a sharp knife; he then discovers more accurately the extent of the thin soft part of the bone, and with a strong and sharp-pointed knife he makes a circular incision in the skull, raises up, and takes out the part. He then sees the clear thin bladder underneath, which he lays hold of with a small hook, or the point of a needle, and gently draws it out; taking all possible care that it should not be broken, or the water spilled, which would prove unfavourable to recovery. He finds a considerable hollow in the brain, where the bag was situated, over which he brings the flap of skin that was raised, so as to cover it as nearly as possible. Over the whole he applies a plaster of tar, and leaves the rest to nature. This operation often proves successful.*

* The operation by a wire, or by the trepan, which are indiscriminately used, may succeed in Tweeddale, once in thrice at an average. Of late, a gimlet has been bored twice into the skull and brain, from the root of the nostril, in a direction to the root of the horn on the opposite side of the head—apparently with equal success, however seemingly mortal the wounds.

VII. *Palsy, or Thorter-ill, or Trembling.*

This disease is seated in the nervous system, and is perfectly similar to palsy in the human species. It is sometimes produced by eating poisonous and stupefying plants; and sometimes it arises from weakness, or general debility.—Flowers of zinc, administered in small doses in bread pills, or the same metal converted into a salt, by fusion with an acid, is the most powerful known remedy for this disorder.

VIII. *Diarrhœa, or Cling, or Breakshaw.*

Is a looseness, or violent purgation, which sometimes seizes sheep after a hard winter, when they are too rashly put upon young succulent grass. The cure should be attempted by making them feed upon astringent plants, such as tormentil, bark and leaves of oak and willow, or bruised twigs of these plants. If these do not soon check the disorder, opiates and laudanum may be administered: from 15 to 20 or 25 drops of laudanum, thrown upon a piece of wheaten bread, which the animal is made to swallow, will soon check the disorder; and it should be repeated, if it returns with violence. Or the laudanum may be dropped among a little warm milk, and poured down its throat.*

Another species of diarrhœa frequently occurs in the last stage of chronic disorders, and is only to be cured by promoting the strength of the animal.

IX. *Rot.*

The general discriminating character of this disease is, that its seat is in the glandular system; though many different disorders are confounded under this name. The disorder is either partial, and confined to particular glands; or general, and effecting the whole system.

* John Loch, Esq. takes notice of what is called *breakshaw*, or *breadshaw*, in Tweeddale, as a disease analogous to dysentery in the human species, occurring in the end of wet summers. The discharge is thin and greenish coloured, (he supposes from the wet grass becoming acid in the stomach, and turning the gall green;) it is more or less mixed with blood, sometimes florid, sometimes grumous and black; the animal pines for a week or two, and dies; though sometimes it recovers: warm milk poured down the throat, is the cure used by his herd: he proposes, when it occurs, to try, in addition, nitre in half-drachm doses, with chalk or other absorbent powder, and 20 or 30 drops of laudanum, once or twice a-day, with frequent injections of warm milk and water.

This disease (in conformity to Mr. Gillespie, of Glenquich's observations upon Cling) is often occasioned by overheating, when hunted by dogs, in folding them, &c. or when otherwise scared and terrified. It is considerably infectious; and probably the method mentioned by Mr. Gillespie, of tarring part of the flock, that the smell of the tar may prevent the infection, may be of great advantage.

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1. *Pulmonic Rot*, or consumption, most frequently attacks young sheep, especially of the more delicate breeds, in unfavourable situations and seasons. The most general cause is cold and wet, especially at the end of winter, or beginning of spring, joined to damp situations, and scanty subsistence. The lungs are found to be tuberculous; the animal coughs; and in the progress of weakness, an œdematous swelling, called in Scotland the *pock*, or *poak*, is formed under the jaw. This swelling is of a dropsical nature, and is merely a symptom of weakness common to many disorders. It may be pierced, and the water it contains drawn out. In this kind of rot, the liver is sound.

2. *Hepatic Rot* has its seat in the liver, and there are several varieties of it. 1. Sometimes it appears in the form of *schirrus*, the liver being hardened and swollen. This occurs in wethers, during a dry year, when their provisions are scanty, and they labour under an over-costive habit. It may be prevented by more abundant, and perhaps more succulent food, 2. *Disordered liver from the fluke-worm*, or *fasciola hepatica*, occurring in the biliary ducts; and sometimes, in consequence of ulceration, appearing even on the surface of the liver. This species of disease prevails in some low, moist grounds, more than others; and even there, in some particular animals more than others. Its origin is obscure, and no cure has yet been attempted. Mercury is the only remedy that promises to be successful; and it may be occasionally administered in small doses, in bread pills; or mercurial ointment, such as we have described, may be rubbed upon the inside of the animal's thigh, previously laid bare, until the body seems saturated. But when this disease is discovered to be frequent in a flock, the whole should be disposed of as soon as possible. 3. Sometimes the liver is, in some parts, filled with watery vesicles; and sometimes there is a slight thickening, and apparent inflammation, in particular portions of it. But whether these should be considered as indications of a primary affection of that organ, or only consequences of another disorder, is uncertain.

3. *General, or true Rot*.—This is by far the most important, because the most destructive, and in some situations, the most common malady to which sheep are exposed. It arises from deficient, or bad aliment; whether the food itself be bad and scanty, or the animal be incapable of digesting it properly. It is most common from the former cause, want of food; and the disease is much the same with scurvy among the human race. In addition to these causes, whatever tends to depress the spirits, frequently excites, or at least exasperates the malady. It is said, that soldiers in a garrison have been known to be seized with the scurvy on hearing bad news; and I doubt

not but terrifying sheep with dogs, or other means, may produce, or aggravate, this disease. We may hence see what mischief a fox-chase, or any exhibition of that sort, is calculated to bring upon a flock of sheep. This disease is also said to be produced by feeding upon watered grass : and hence shepherds, in many parts of Scotland, are careful to keep off their sheep from the tender grass, produced by the occasional overflowing of rivulets. Feeding also in marshy and damp pastures, is known to be a powerful cause of the rot.

The only means of cure, are a supply of good and wholesome food, and invigorating the stomach, by permitting the animal to feed on those stimulating and aromatic herbs which are agreeable to its taste. It is believed, that, on dry sweet pastures, where there is a sufficient quantity of furze and broom, juniper, and other shrubs that are palatable to sheep, the rot is seldom heard of. When ground is sown down for sheep pasture, parsley, thyme, peppermint and other aromatic herbs, should be sown with the grass seeds, as these plants serve both to prevent and to cure the rot. In addition to these means of cure, every thing that tends to annoy or depress the animal, in its weakly state, ought to be avoided.*

X. Foot Rot.

Is a suppurating in the glands between and above the hoofs, and is precisely the same with chilblains in the human species. The remote cause of the disease is weakness, and the immediate cause is cold and wet. Standing, in cold weather, with the feet perpetually soaked in water upon wet pastures, produces this disease ; and it can only be removed, by procuring for the animal warmth and dryness, while its body is invigorated by proper food.

CONCLUSION.

It is evident, from what has been stated, that it is much easier to prevent, than to cure, the diseases of sheep. With a view to prevent diseases, it is unnecessary here to recapitulate,

* Shepherds in Tweeddale are generally unable to distinguish these three kinds of Rots (as they are unable also to distinguish three different kinds of Braxy) from external symptoms in the live animal. The *pouch* gives great suspicion, but is not an infallible symptom of rot. The old breeding ewes are annually examined about Michaelmas. They are judged of as rotten or fresh, by handling ; the flesh of the rotten being more loose and flabby : the principal mark is taken from the appearance of the eye, in the corner next the nose, when the eyeball is turned to look away from the nose : in a sound sheep, the flesh adhering, in this corner, to the eyeball, under the eyelids, is of a florid red colour ; in the rotten, this flesh is of a dull appearance, and a yellowish red, somewhat like the colour of a rotten egg when the yolk and white are confounded together. The rotten are always fold off among the stocks, no cure being attempted.

of the compost. All top-dressings are exhausted in the year. The oil-compost seems to retain its vigour longer. It will here be proper to observe, that these experimental lands were in a common field, which had been many years under the plough.

VIII. ON THE OIL-COMPOST.

By Richard Townley, Esq. of Bedford.

In the spring 1770, I prepared a piece of ground for onions. It was laid out into six beds of equal size, and all sown at the same time.

Over two of them, the oil-compost was scattered in a very moderate quantity. Over other two, pigeon-dung. And over the remaining two, some of my weed-compost, which I esteem one of the best manures, for most vegetables, that can be made.*

The onions came up very well in all the beds; but, in about six weeks, those that were fed with the oil-compost plainly distinguished the advantage they had over the rest, by their luxuriance and colour; and, at the end of the summer, perfected the finest crop that I had ever seen, being greatly superior to the others both in quantity and size.

The same spring I made an experiment upon four rows of cabbages, set at the distance of four feet every way. Two were manured with the oil-compost, and two with my own. All the plants were unluckily damaged, just before they began to form, by some turkeys getting into the field, and plucking off the greatest part of the leaves. However, they so far recovered as to weigh, in the September following, from 22 to 28 lb. a-piece. The rows proved so equal in goodness, that I could not determine which had the advantage.

The same year, one part of a field of wheat exposed to the north-east winds, which that spring continued to blow for a month or five weeks, appeared very poor and languid at the time of tillering. Over it I ordered some of the oil-compost to be sown with the hand, which not only recovered, but also pushed forwards the wheat plants in that part of the field, so as to make them little inferior, if any, to the rest.

The same spring I made a comparative experiment upon four contiguous lands of oats, between the oil-compost and my own weed-compost. The latter had manifestly the advantage, though the other produced a very fine and large crop. I also tried the oil-compost upon carrots, and it answered exceedingly well. I did the same this year, (1771) both upon them and my onions; and have the finest crops of those vegetables I ever saw any where upon the same compass of ground.

* This compost is formed of vegetable substances reduced into putrefaction.

IX. TO MAKE A RICH COMPOST OF POND-MUD, &c.

By Mr. William Speechly.

We may naturally suppose that the mud of ponds, in general, is of a rich nature, when we consider the materials of which it is composed. First, ponds, from their lowness of their situation, receive the drainage, and consequently the riches of the adjacent lands around them. Secondly, a supply of various matter is constantly brought by the wind, and particularly the leaves of trees during the winter season. Lastly, cattle afford the greatest supply by their dung and urine, as they frequent ponds at most seasons, but chiefly in warm weather.

Let the pond be cleaned out any time during the summer; if the mud is soft and slimy when taken out, it will be proper to let it lie a short time near the pond bank to harden: then mark out a staddle, in proportion to the quantity of mud taken out, which if not very considerable, the first course, or foundation of the intended heap, may be made of common mould, taken from any mound, hillock, &c. where it is most convenient, which should be laid at least one foot thick; upon this lay a course of dung, fresh from the stable, fourteen or fifteen inches in thickness: next put a layer of pond-mud, nine or ten inches thick, upon which lay a course of lime, fresh from the kiln, five or six inches thick; and so alternately, a layer of dung and lime between every two layers of pond-mud, till the whole is finished. In this place it should be remarked, that it is absolutely necessary to separate the layers of lime and dung by a layer of pond-mud.

In places where they can be got, the offal of animals, soot, saw-dust, sweepings of streets, or in short, any vegetable or animal substance that is reducible, will be exceedingly proper to add to the compost. The whole may be covered with a coat of common mould. The dung and lime will occasion a gentle ferment throughout the whole mass, the bottom layer, excepted.

After the heap has lain three or four months, it should be turned over with the spade, and by the next spring it will be ready to lay upon tillage land; but if it is intended to be used as a top-dressing, it should then continue in the heap till the following winter, by which time it will become a fine rich compost, exceedingly proper for that purpose. In the latter instance, a good crop of potatoes may be got upon the heap, and it will save expence and trouble in weeding.

The quantity of mould in the bottom layer, and also in the covering, may be varied at pleasure.

X. ON PROTECTING WALL FRUIT.

By William Duffin, Esq.

Hearing that covering fruit-trees growing against the wall,

would protect them from the effects of frost, at the time when the blossoms make their appearance, I determined on making the trial upon a well spread apricot-tree, which grew upon a south wall; and in order that the experiment should prove conclusive, I covered one half of the tree with a net, leaving the other half exposed to the weather. The consequence was, the covered branches produced fruit abundantly, while the exposed branches did not bear a single apricot. The net was put on when the blossoms made their first appearance, and kept on till the fruit was fairly set. I observed on this experiment, that the net attracted the moisture of the atmosphere, which occasioned the threads of the meshes to be constantly covered with ice, when the evenings and mornings were disposed to be frosty.

XI. HOW TO IMPROVE THE TURF OF POOR PASTURE LANDS.

By Mr. William Speechly.

It is well known that the turf on poor land, constantly gets worse a few years after having been laid down for pasture. The cause is obvious. There are a few spirey grasses, natural to most poor lands, and these are called *natural grasses*. The seeds of clover, and other kinds of grasses introduced, are generally termed *artificial*. The roots of these are not very durable on poor land, and as cattle are greedy of these grasses, they constantly crop them, and prevent their going into seed, whereby the land is deprived of fresh supplies of young plants; whereas the natural grasses, in general, being much inferior to the former in quality, are refused by cattle, and the land, consequently, soon becomes plentifully stocked with them.

The general mode of practice to improve land when the turf gets thin and bad, is to bring it under a course of ploughing. But when that is not convenient, or when the occupier of such lands is not inclined to introduce the plough, they may be greatly improved by having fresh seed sown upon them. The best season for doing it is in the beginning of April. Let the ground first be well worked over with a heavy bush harrow, this will brush up and raise the soil, and the better prepare it for the seed to strike. A dressing of compost-earth should then be given, and the seed sown thereon; after which, let the ground be lightly brushed over, and well rolled. If the season prove moist and kind, the seed will thrive to admiration, and wonderfully improve both the turf and verdure.

Land that has been greatly cut up by carriages, or much trode up by cattle, is also capable of being thus improved, without the dressing of compost-earth.

In paddocks where the land has been cut up even to an extreme degree, by rude and wanton horses, I have seen a new

and verdant turf arise, even to amazement, in a few weeks after sowing the seeds. It will be necessary to observe, that cattle should be prevented from coming upon the land till the turf get well set.

It were much to be wished that farmers would at all times pay the utmost attention to the saving of hay-seeds, but particularly at the season of making the hay-ricks; a consideration of great importance. Large quantities of seed may be saved, by having a cloth constantly kept between the rick and the waggon, at the time of unloading the hay. The seeds, that shed out at that season are certainly in the greatest perfection, being perfectly ripe, and totally uninjured by the heating of the hay.

XII. A GENERAL IDEA OF THE OIL-COMPOST.

By A. Hunter, M. D.

This compost was originally formed upon the supposition that oily particles constitute the chief nourishment of vegetables. The use of rape-dust, and other oily and saponaceous manures, place this doctrine in a favourable light. It now remains that we determine the merit of the compost by accurate experiments.

The oil-compost may be used two ways: it may either be sown upon the surface with the hand, or worked into the soil by the plough or spade. For corn and horizontal feeders, the first method is most proper. The latter is best for cabbages, hops, beans, carrots, and all tap-rooted plants. When distributed upon the surface, it is soon meliorated by the action of the air, rains, and dews. When worked into the soil, it is deprived of those necessary influences. Here lies a material distinction which leads to its right use and application.

Previous to the planting of any deep-rooting vegetable, the compost should be worked into the soil by the plough or spade. Its particles, when undivided, are too hot for the tender shoots.

Some injudicious inquirers have placed a handful of the compost close to the roots of a cabbage plant, flattering themselves that they were then conducting an *experimentum crucis*. Death, or a feeble vegetation, ensued. Hence arose an argument against the nutritive power of the compost. Lime, the ashes of burnt vegetables, stale urine, goose and pig-dung, when improperly applied, are also poisons. It requires some judgment to plant, as well as to reason upon an experiment.

Experiments correctly made, constitute the basis on which agriculture should be raised; but those experiments should rather be the effect of reason than of chance. To plan an experiment well; to trace it minutely through its progress, and to draw a just conclusion, requires a perfect knowledge of the

history of nature and of art. From a defect in those particulars, we often become hasty in our praise, as well as indiscreet in our censure.

From a variety of experiments, I find that the compost should be prepared some months before it is used: it should also be frequently turned and exposed to the influence of the atmosphere. This last operation is absolutely necessary when the compost is intended to be worked into the soil with the spade. By that means the acrimony of the salt will be abated, and the plant, instead of being burnt up, will be encouraged to spread its roots in quest of nourishment.

It will here be necessary to observe, that the oil-compost was originally intended as a substitute for rape-dust, and other expensive top-dressings. In all respects it must be considered as inferior to rotten dung.

XIII. A PROFITABLE METHOD OF SOWING WHEAT ON LAND TOO STRONG FOR TURNIPS.

By Mr. E. Cleaver, of Nunnington.

In the year 1769, I had a field about six acres, which, in the common course of husbandry, should have been summer-fallowed, in order to prepare it for sowing wheat at the latter end of the year. The soil being a loose crumbling clay, I sowed it with rape, about a fortnight before Midsummer, instead of fallowing.

On the 25th of September, it was stocked with sheep, and eat close to the ground; and about a month after that, it was sown with wheat upon one ploughing. The winter being open, great part of the rape, which was ploughed in, revived in the spring. This, I feared, would endanger the crop. In that situation things remained till about the 20th of April, at which time I thought the rape was in full sap. I therefore judged this the most favourable season for destroying it. For that purpose I turned in as many ewes and lambs as eat both rape and wheat down in a week; and this had the desired effect, by utterly destroying the rape. The field was then left to take its chance. As no weeds appeared, there was no expence upon that article. The property was thirty-six bushels per acre, Malton measure, which is five per cent. above Winchester.

I must here observe, that the year 1769 was remarkable for the largeness of its produce on lands in general; and, though I am very inclinable to prefer this method of cultivating wheat, yet, upon an average, I should think that twenty-eight bushels per acre is as much as we can reasonably expect, though the land be in good condition.

I say I am inclined to prefer this method, because turnips would be of little value to eat off on that kind of land, and at

that early season of the year, when they are not sufficiently swelled. Were we, in order to remove that difficulty, to sow them earlier than the usual season, they would probably be either thick-necked or run to seed.

It will hardly be necessary to observe, that the corn produced upon this field was remarkable for the goodness of its quality.

THE PRODUCE:

36 bushels of wheat at 5s.	£9	0	0
Rape eatage at Michaelmas	1	10	0
Ditto in April	0	5	0
	<hr/>		
Per acre	10	15	0
	<hr/>		

XIV. ON SIBERIAN SPRING WHEAT.

By Sir Digby Legard, Bart. of Ganton.

On the 2d of April, 1771, I drilled two pecks of Siberian spring-wheat on one-third of an acre, in rows one foot asunder. Previous to sowing, the wheat was limed in the usual manner. The land a rich loam, which had borne a crop of turnips fed off with sheep. The turnips were fine ones, and the land, which lets at sixteen shillings per acre, was in such good order, that I judged one ploughing a sufficient preparation for the wheat crop. The season was at first unkindly; and the corn came up very thin, with many weeds amongst it. It was hand-hoed, and soon after flourished and tillered amazingly. Though it appeared fine about the time of maturity, there were, notwithstanding, many weeds amongst it, and it did not seem quite a full crop. In the beginning of October the corn was cut, and on the 19th of the same month was thrashed. The produce, 12 bushels, 2 pecks, viz. 25 for 1. This appears a considerable produce on the seed sown. The grain was well ripened, and in appearance (for I have not yet sent it to the mill) not inferior to any of the common wheats sown at the usual time. This kind of wheat seems a real acquisition to husbandry; and yet some common white wheat, sown at the same time, had the appearance, whilst growing, of producing somewhat a larger crop, only it did not ripen so kindly, and was also later in ripening. But if this Siberian wheat was superior to the common spring-wheat, it was certainly greatly inferior to some wheat of Switzerland sent me by the Society of Arts, and sown on land contiguous to the above, and at the same time. This last was as fine a crop as one could look on, ripened a fortnight sooner than any of my spring wheats, and was as early as any of the autumnal sorts.

XV. ON THE METHOD OF RAISING SEEDLING POTATOES.

By *A. Hunter, M. D.*

Take a bunch of the apples of a white potatoe. Hang it up in a dry place during the winter, and in February separate the seeds from the pulp, by washing the apples in water, and pressing them with the fingers. Then dry the seeds upon paper. In the month of April, sow these seeds in drills, in a bed of earth well dug, and manured with rotten dung. When the plants are about an inch high, draw a little earth up to them with a hoe, in order to lengthen their main roots. When they are about three inches high, dig them up with a spade, and separate them carefully from each other, in order for planting out in the following manner.

Prepare a piece of fresh ground by trenching it well. Dig up the seedling plants as before directed, and plant them out in the ground, thus prepared, in such a manner, that there shall be sixteen inches between each plant. As they advance in growth, let them receive one or two earthings up, in order to lengthen the main root, and encourage the shoots under ground.

By this management the potatoes will, in the course of one season, arrive at a considerable size, and the haulm will be as vigorous as if sets had been planted. But what proves the luxuriancy, in the most convincing manner, is, that flowers and apples are sometimes produced.

In Lancashire, where the gardeners raise potatoes from seed, they are always two years in bringing them to full size. By the above method of transplanting, with wide distances, many of the potatoes will attain their full size in one season.

It is observable, that these seedlings produce potatoes of many different kinds; and sometimes new sorts are procured. We do not find any difference whether the apple comes from a round or a kidney kind. It is not so when we use the set, which invariably produces the same kind.

Apples taken from a red potatoe that has flowered in the neighbourhood of white ones, will sometimes produce a kind internally marbled red and white, as I found from an experiment made in the year 1773—and I presume, for the same reason, that apples taken from a white potatoe that has flowered in the neighbourhood of red ones, will produce something of the same kind. This proves to a demonstration, that the male farina is received into the female organ, without which there could not possibly be an impregnation of the seeds lodged in the ovarium. The idea of animal generation, as given us by Lewenhoeck, is similar to this, and is in a great measure, confirmed by it. In both cases, however, there remains a difficulty in explaining how those mongrel productions are

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formed, that partake of the nature of the male and female parents. But this disquisition is foreign to the present purpose, and more properly belongs to the Essay on the sexes of Plants.

Potatoes, when propagated from sets, after a number of years, are found to decrease in bearing; for which reason they should be brought back every fourteen years to their original.

From a want of attention to this circumstance, I have known potatoes so run out, that they hardly returned treble seed. The farmer complains that his land is tired of them, but the true cause is the age of the sets.

The increase of potatoes raised from seed is astonishing. They continue in vigour for about fourteen years; after which, the produce gradually declines.

XVI. ON THE ALTERNATE HUSBANDRY.

By Lewis Irwin, Esq. of Tanrigoie, in the kingdom of Ireland.

The alternate husbandry seeming well calculated for lands in this part of the world, I was induced to make trial of it in a field of forty acres Irish*; the soil a good kind of loam, but so full of large stones as continually to interrupt the plough. Add to this, its being sadly mangled with old rotten ditches, the foundations of which were mostly composed of these large stones. To bring this field into proper culture, the alternate husbandry was admirably calculated, as it gave me an opportunity of rolling off the stones and rubbish upon the lea, where they remained till I had leisure to remove them. These stones I got drawn off, and built into a wall five feet high, at the rate of three shillings the rod (21 feet;) and which I may have capped and pointed with lime-mortar for half-a-crown more. By this method I get a fence that will last for ever. Agreeable to this plan I propose to divide my whole farm into inclosures of ten acres Irish. My grounds being much exposed to the sea, I prefer that size on account of the shelter.

It was in the spring of the year 1770 that I began my experiment upon the alternate husbandry; and, from what I have observed, in the first year, I am determined to continue that system of farming. It diminishes the expence of manure, and secures a clean fallow; two objects of the utmost importance.

I have above observed, that my experimental field was forty acres Irish. The whole was disposed in lands about four yards broad. Somewhat less than one half of the field was sown with 220 stones of oats, which is about half the seed usually put into the ground here. The corn ripened kindly

* Ten acres Irish are equal to six English.

and I reaped 3200 stones; a greater crop than my neighbours had from double seed. I could not help being greatly satisfied with my success, as I was much ridiculed by the name of the Striped-Lutestring Farmer. The oat-lands are now (Jan. 1771) ploughed and split, and will be fallowed for wheat in September. The lea-lands I shall sow in the spring with oats; and make no doubt of obtaining a crop superior to the last year.

The period of time employed in this experiment, cannot justify me in making absolute conclusions. It is, however, sufficient to encourage me to prosecute the plan laid down in your last Number.

XVII. THE DIMENSIONS OF AN EARTHEN FENCE, AS MADE IN NORTHUMBERLAND.

By Thomas Riddell, Esq. Felton Park, Northumberland.

The fence must be five feet in breadth at the bottom. One foot to be allowed for to plant the quicks on the side next the ditch, and one foot on the other side for the breast of the dike; so that the whole breadth will contain seven feet. The fence must be made four feet two inches high. The ditch four feet wide at the top, and one yard in the slope, and must be one foot three inches broad at the bottom. The top of the fence must be one foot three inches in breadth. The fence, at the top, must be covered with a sod, the green part uppermost. Four quicks in every foot. These must be put in horizontally; so that, when the stem shoots upwards, it forms a right angle with the whole stock. This method is found practically better than when the set is put down in a perpendicular direction. By this mode of fencing, no posts or rails are required. The price in Northumberland is sixpence for each rood of seven yards.

T. R.

ERRATA.

To the Editor of the Agricultural Magazine.

SIR,

YOUR correction in your next Number, of the following errata in my letter in your last Magazine, will much oblige

Your obedient servant,

Norwich, June 6, 1803.

PHILALETHERS.

Line 1, for *As purchaser* read *A purchaser*.

Line 10, from the bottom of page 334, for *resuming his fair fame*, read *rescuing his fair fame*.

Line 3, of page 335, for *the above-mentioned*, read *the time mentioned*.

For *totidem verbis*, and *totidem sententiis*, read *totidem verbis, et totidem sententiis*.

In line 14, page 335, for *a mere translation*, read *a mere transcript*.

A NEW MODE OF CONTRACTING FOR THE FLOATING AND DRAINING OF LAND.

To the Editor of the Agricultural Magazine.

SIR,

I Have lately heard of a new mode of contracting for the formation of floated-meadows, the knowledge of which appears to me to merit a general circulation.

Henry Portlock, a very skilful and eminent floater, and who has been for several years engaged in various parts of Wales in irrigating considerable tracts of land for Mr. Johnes, of Hafod; for Mr. Talbot, of Penrice Castle; for Mr. Philips, Colonel Wood, and others; is now contracting, I am told, with Mr. Talbot, according to the following rather singular stipulation: The land under consideration is twenty acres, and Mr. Talbot agrees to let Mr. Portlock a lease of this land for twenty years, at the rent of one shilling a year per acre, the said Portlock engaging to drain, and to form this land into, and to leave it at the expiration of his lease, as perfect floated-meadow land, as circumstances will allow.

Thus, Mr. Talbot, without feeling any degree of dread of the first expence of formation, which in some instances he has reason to know is very heavy, will have twenty acres of land, which is at present totally unprofitable, being lately recovered from the sea, and a mere bed of rushes, brought into a highly productive state, probably rendered worth three pounds an acre, as hay always produces a high price in the neighbourhood of Swansea. And the floater will certainly have little reason to repent of his engagement, as the product of every year, after the first, will be nearly clear gain to him. And I cannot here refrain saying, that the public at large will have no cause to regret that such contracts have been entered into by individuals. And, indeed, were every opportunity or occasion of this kind, nay, if even all what are generally esteemed desperate cases of this sort were embraced, in conformity to the above-mentioned system, we should soon see an invaluable addition made to our annual crop of hay, which will ever be an article of the first necessity, as long as we remain a commercial nation.

Two acres of land, adjoining to the above-mentioned twenty acres, cost Mr. Talbot, a few years ago, fifteen guineas per acre, in converting them into floated-meadow. This method, therefore, appears a very easy one of obtaining a watered meadow, and at the same time a very safe one, for the floater will, for his own sake, always strive to make the meadow as perfect and productive as possible, and it will every year, during the term, continue progressively improving.

The above named person is not the only one who is willing

to enter into engagements similar to that which I have recited. All the professed floaters, who are now engaged in various and distant parts of the United Kingdom in the art of irrigation, are willing, I believe, and desirous of forming contracts of the above kind, where the quantity of land is sufficiently extensive to merit notice.

Nor has this mode of bargaining been confined to floating alone. I am informed that it has been adopted in the draining of land. Mr. Elkington, a few years ago, I am told, engaged to drain a tract of land not less than 600 acres, the property of Mr. Crewe, late Member for the county of Chester, on condition of a lease being granted him by Mr. Crewe for 50 years at the rent of one shilling a year per acre.

This lease must be allowed to be a very liberal one on the part of the landlord whether we consider the extreme lowness of the rent or the duration of the term, but the first expence of Mr. Elkington must likewise have been very considerable: for his chief or master drain which was to afford fall and vent to a large body of water, was of necessity not only of great extension but of large dimensions likewise, and deserves rather the name of a canal than a drain. The two first years of his engagement were, of course, worse than unproductive, but every succeeding year has been a year of abundant remuneration; for this land, which was before little better than a mere bog or morass, a great part of which was constantly under water, is now become sufficiently dry and firm to bear the operations of the plough, and to produce excellent crops of oats, clover, and potatoes.

Thus the undertaker in this contract will, long before the expiration of his term, have amply reimbursed himself; and the proprietor of the land at the expiration of the lease will be enabled to demand pounds where he now only receives shillings.

Hints, Mr. Editor, respecting such improvements as the above cannot, I presume, tend towards individual or public detriment, but must be productive of real and extensive good, I therefore request an insertion of them in your very useful miscellany.

And am yours,

London, June 11.

T. W.

ON THE BEST MODES OF PLANTING AND MANAGING BROAD CLOVER.

To the Editor of the Agricultural Magazine.

SIR,

YOUR Correspondent A Norfolk Farmer in your last Number, page 331, requests to have a cause assigned why clover is so apt to "die away in the spring or winter season."

For "after being a full plant," he says, "at Michaelmas, it is frequently all gone or nearly so by May."

I have paid some attention to this best of artificial grasses, and shall transmit to you my sentiments respecting the treatment which I think it ought to receive, and shall give you the opinions of men of authority respecting it.

I have always observed that clover will stand its ground much longer when pastured off, than when mown. And that it will continue much longer in full strength when rather lightly fed, than when eaten down bare to its roots. For if the heart, or the internal part of the plant, be laid bare to a continuance of wet weather, especially in autumn, or to a frosty night, it will generally perish. I have always of late been very tender in the treatment of clover in its first year, excepting when the plant has appeared very strong, and even then I have preferred to commit it to the gentle bite of lambs, rather than to grown sheep, or to cattle. But a similar treatment to this, it appears, from the words of your Correspondent, does not obtain in Norfolk; for he mentions two crops taken from it in one year, and yet seems to express a degree of expectation that it should be found in full vigour the year following. This is scarcely reasonable, for if clover is suffered to bring its seed to a tolerable degree of maturity, it is seldom known to survive the following winter.

Mr. Crutwell, in his Dictionary of Husbandry, says, "the clover is a biennial plant, whose roots decay after they have produced seeds; but by eating it down, or mowing it when it begins to flower, it causes the roots to send out new shoots, whereby the plant is continued longer than it would naturally have been continued."

Mr. Kent, says, "on poor land farms much clover is fed off with flocks of sheep, entirely folding the land over for wheat; for which crop no tilth whatever is so good and advantageous." Were the Norfolk farmers thus merciful to their clover crops they would have much greater reason to expect to find a healthy plant in the second year than they at present have.

It is the opinion of Dr. Anderson, that where any reliance is to be had on broad clover for a *second* year's crop, it is advisable to sow with the clover a proportion of rye grass. This is a very profitable practice, as it much augments the weight of the first cutting, and makes it come some weeks earlier than otherwise it would have been. It also effectually prevents the white gowans from appearing, which so often render a crop of red clover, sown alone, worth so very little. And in order to guard the clover, in the case of a second year's crop, it should never be cut, Dr. Anderson thinks, very late in the season, for this lays the surface so bare as to leave the roots

very much exposed to danger; but if it be cut pretty early in autumn, the rye grass advances again in the end of the season, after the clover has become stationary, so as to afford a close covering that defends the roots pretty well. By taking these precautions, he has been seldom disappointed in his second year's crop, though it *sometimes* disappears almost entirely. Dr. Anderson does not think it possible in Scotland ever to guard against this accident *with certainty*, where broad clover alone is sown: he therefore considers it imprudent in any one, in almost any circumstances, to rely on that *second year's crop*; and holds it as a maxim, that if a man is to depend on red clover alone, he never should think of taking more than one year's crop from it. The rule which he has followed to guard against accidents of this sort, is, to sow along with the red clover a considerable proportion of the white or Dutch clover, and some grass. If the broad clover, in this instance, flourishes, these do not retard its growth, and only tend to thicken it; and if it should fail, which it sometimes will do in spite of every precaution, these plants fill the ground, and produce an abundant crop of herbage, which, he thinks, affords a greater weight and finer hay than broad clover alone: though they do not answer quite so well for cutting for green forage.

Mr. Wimpey thinks that it is a much better plan to sow clover *alone* than along with corn, for if you have a good crop of corn, you can have but little clover; and if on the other hand you have a dripping season, and a full crop of clover, then you have but little corn. "I would, therefore, says he, rather sow a full crop of oats, and as soon as convenient after harvest, give the land a good ploughing, and let it lie rough all the winter; in the spring give it another good ploughing or two, and harrow it well; then sow it with twenty pounds of broad clover, mow it when in full bloom for hay, and eat the remainder before winter. In December or January lay on your dung, and as soon as the clover is in bloom mow again. As soon as the hay is carried off, if convenient, plough it well, and repeat it before harvest if you can; then in September you may sow it again with wheat. The carrying the crop off the ground may be thought to impoverish it; but if there was a good crop of clover it will have so mellowed and prepared the ground as to render it very fit for another crop. This is the course I would recommend for all strong lands."

These scraps, Mr. Editor, on a subject of some importance to the farmer, are at your service, to be used or not as you may think fit.

Yours,

A BERKSHIRE FARMER.

CORRECTION OF A MISTAKE RESPECTING A REMEDY FOR
THE RAVAGES OF THE TURNIP FLY.

AGRICOLA NORFOLCIENSIS requests the whole of his late Letter to the Editor of the *Agricultural Magazine*, may be suppressed, which relates to the Remedy against the Turnip Fly. He finds since that it is ineffectual after a few days exposure to the air, and therefore not worthy being communicated to the public.*

Fakenham, June 14, 1803.

ENUMERATION OF PATENTS LATELY ENROLLED

April 1, 1803. **W**ILLIAM BAINBRIDGE, of Little Queen-street, Lincoln's-Inn-Fields, Musician; for improvement on the flagelet or English flute.

5. William Boond, of Manchester, Lancashire, Cotton-manufacturer; for a new invented manufacture of mixed and coloured cotton-velvets, velveteens, velverets, thicksets, cords, and other cotton piece goods, commonly called fustians.

5. Richard Francis Hawkins, of Woolwich, Kent, Gentleman; for a method of applying a certain power to the working of ships and other windlasses, ship and other winches, cranes, and other purposes, to which the same hath never before been employed.

7. John Leach, of Merton Abbey, Surrey, Callico-printer; for improvements on steam-engine boilers; which improvements are applicable to boilers in general.

11. Daniel Paulin Davis, of Bloomsbury-square, Middlesex; for a method of cleansing and sweeping chimnies.

14. John Todd, of Bolton, Lancashire, Cotton-spinner; for a method of weaving and manufacturing woollen, cotton, linen, silk, and worsted cloths and stuffs; and also certain improvements on, and additions to, the machines used in weaving, by means of looms wrought by water, steam-engines, or any other power.

20. William Horrocks, of Stockport, Cheshire, Cotton-manufacturer; for improvements on the loom for weaving of cotton, and other goods, by steam or water.

20. Samuel Day, of Charter House Hinton, Somersetshire, Esquire; for an engine or time-piece, which he denominates, "*The Watchman's Nectuary, and Labourer's Regulator.*"

27. James Hall, or Mellor, in the parish of Glassop, Derbyshire, Weaver; for improvements upon looms.

* This correction did not arrive soon enough to prevent the insertion of the remedy alluded to, but will have its effect by appearing in the same Number of the Magazine.

PREMIUMS offered by the SOCIETY, instituted at London, for the Encouragement of Arts, Manufactures, and Commerce, for the Year 1803.

TO THE PUBLIC.

THE chief objects of the SOCIETY are to promote the Arts, Manufactures, and Commerce of this kingdom, by giving rewards for all such useful Inventions, Discoveries and Improvements, (though not mentioned in this book,) as tend to that purpose; and, in pursuance of this plan, the SOCIETY have already expended near FIFTY THOUSAND POUNDS, advanced by voluntary subscriptions of their members, and legacies bequeathed.

The manner in which this money has been distributed may be seen by applying to the Secretary or other officers of the SOCIETY, at their house in the *Adelphi*. The Register of the Premiums and Bounties they have given will shew the very great advantages which the Public have derived from this Institution.

The meetings of the SOCIETY are held every *Wednesday*, at seven o'clock in the evening, from the fourth *Wednesday* in *October* to the first *Wednesday* in *June*. The several Committees meet on other evenings in the week during the session.

In order still farther to promote the laudable views of this SOCIETY, it may be necessary to explain the mode by which its members continue to be elected.

Each member has the privilege, at any weekly meeting of the SOCIETY, of proposing any person who is desirous to become a member, provided such proposal is signed by three members of the SOCIETY.

Peers of the Realm or Lords of Parliament are, on their being proposed, immediately ballotted for; and the name, with the addition and place of abode, of every other person proposing to become a member, is to be delivered to the Secretary, who is to read the same, and properly insert the name in a list, which is to be hung up in the SOCIETY's room, until the next meeting; at which time such person shall be ballotted for; and, if two-thirds of the members, then voting, ballot in his favour, he shall be deemed a *perpetual member*, upon payment of *Twenty Guineas* at one payment; or a *subsisting member*, upon payment of any sum not less than *Two Guineas* annually.

Every member is entitled to vote and be concerned in all the transactions of the SOCIETY, and to attend and vote at the several Committees. He has also the privilege of recommending two persons as Auditors, at the weekly meeting of the SOCIETY; and, by addressing a note to the Housekeeper, of introducing his friends to examine the various models, machines, and productions, in different branches of arts, manufactures, and commerce, for which rewards have been bestowed; and to inspect the magnificent series of moral and historical paintings so happily contrived and completed by JAMES BARRY, Esq. which, with some valuable busts and statues, decorate the Great Room. He has likewise the use of a valuable Library; and is entitled to the annual Volume of the SOCIETY's Transactions.

The time appointed for admission to the paintings or models, is from ten to two o'clock, *Sundays* and *Wednesdays* excepted.

PREMIUMS IN AGRICULTURE.

Class 1. ACORNS.

FOR having set, between the first of *October*, 1803, and the first of *April* 1803, the greatest quantity of land, not less than ten acres, with acorns, with or without seeds, cuttings, or plants of other trees, at the option of the candidate; and for effectually fencing and preserving the same, in order to raise timber; the gold medal.

2. For the second greatest quantity of land, not less than five acres, set agreeably to the above conditions, the silver medal.

Certificates of setting agreeably to the above conditions, and that there are not fewer than

three hundred young oaks on each acre, to be delivered to the Society on or before the first *Tuesday* in *December*, 1803.

3. RAISING OAKS. To the person who shall have raised, since the year 1799, the greatest number of oaks, not fewer than five thousand, either from young plants or acorns, in order to secure a succession of oak timber in this kingdom; the gold medal.

4. For the next greatest number, not fewer than three thousand; the silver medal.

Certificates that there were on the land, at least the number of young oak-trees required, in a thriving condition, two years after the planting, with an account of the methods pursued in making and managing the plantation,

to be produced to the Society on or before the first Tuesday in January, 1804.

5. **ASCERTAINING THE BEST METHOD OF RAISING OAKS.** To the person who shall ascertain in the best manner, by actual experiments, the comparative merits of the different modes of raising oaks for timber, either from acorns set on land properly dug or tilled, from acorns set by the spade or dibble, without digging or tillage, either on a smooth surface, or among bushes, fern, or other cover; or from young plants previously raised in nurseries, and transplanted; regard being had to the expense, growth, and other respective advantages of the several methods; the gold medal.

The accounts and proper certificates that not less than one acre has been cultivated in each mode, to be produced to the Society on or before the first Tuesday in November, 1803.

6. **CHESNUTS.** For having sown or set, between the first of October, 1802, and the first of April, 1803, the greatest quantity of dry loamy land, not less than six acres, with Spanish chesnuts, with or without seeds, cuttings, or plants of other trees adapted to such soil, at the option of the candidate; and for effectually fencing and preserving the same, in order to raise timber; the gold medal.

7. For the second greatest quantity, not less than four acres, the silver medal.

Certificates of sowing or setting agreeably to the above conditions, and that there are not fewer than three hundred chesnut plants, in a thriving state, on each acre, to be delivered to the Society on or before the first Tuesday in January, 1804.

8. **ELM.** For having planted the greatest number of the English elm, not less than eight thousand, between the twenty-fourth of June, 1801, and the twenty-fourth of June, 1802; and for the having effectually fenced and preserved the same, in order to raise timber; the gold medal.

9. For the second greatest number, not less than five thousand, the silver medal.

Certificates of the having planted agreeably to the above conditions, that the plants were in a healthy and thriving state two years at least after making the plantation, and specifying the distance of the plants, to be delivered to the Society on or before the first Tuesday in April, 1804.

10. **LARCH.** For having planted out between the twenty-fourth of June, 1800, and the twenty-fourth of June, 1801, the greatest number of larch-trees, not fewer than five thousand; and for having effectually fenced and preserved the same, in order to raise timber; the gold medal.

11. For the next greatest number, not fewer than three thousand; the silver medal.

Certificates of the number of plants, that

they were in a healthy and thriving state two years at least after they were planted out, with a general account of the methods used in making the plantation, to be delivered to the Society on or before the last Tuesday in December, 1803.

12, 13. The same premiums are extended one year further.

Certificates to be produced on or before the last Tuesday in December, 1804.

N. B. The larch-trees may be either planted, mixed with other trees, or by themselves, as may best suit the convenience of the planter.

14. **OSIERS.** To the person who shall have planted, between the 1st of October, 1802, and the 1st of May, 1803, the greatest quantity of land, not less than five acres, with those kinds of willows, commonly known by the names of osier, Spaniard, new kind, or French, fit for the purpose of basket-makers, not fewer than twelve thousand plants on each acre; the gold medal, or thirty guineas.

15. For the second greatest quantity of land, not less than three acres; the silver medal, or ten guineas. Certificates of the planting, and that the plants were in a thriving state five months at least after the planting, to be produced to the Society on or before the last Tuesday in November, 1803.

16, 17. The same premiums are extended one year farther. Certificates to be produced on or before the last Tuesday in Nov. 1804.

18. **ALDER.** For having planted, in the year 1800, the greatest number of alders, not less than three thousand; the gold medal.

Certificates of the number of plants, and that they were in a thriving state two years at least after being planted, to be delivered to the Society on or before the last Tuesday in December, 1803.

19. **ASH.** For having sown or set, in the year 1800, the greatest quantity of land, not less than six acres, with Ash for timber, with or without seeds, cuttings, or plants of such other trees as are adapted to the soil; the gold medal.

20. For the next greatest quantity, not less than four acres, the silver medal.

Certificates of the sowing or setting agreeably to the above conditions; that there are not fewer than one hundred ash plants on each acre, in a thriving and healthy condition, two years at least after the sowing or setting, with a general account of the methods used in making the plantation; to be delivered to the Society on or before the last Tuesday in December, 1803.

21, 22. The same premiums are extended one year further.

Certificates to be delivered on or before the last Tuesday in December, 1804.

N. B. It is the particular wish of the So-

ciety, that such lands only as are not calculated for growing corn, should be employed for the purposes specified in these advertisements.

23. **TIMBER-TREES.** To the person who shall have inclosed, planted, or sown, the greatest number of acres, not less than ten, with the best sorts of forest-trees, adapted to the soil, for timber, between the first of October, 1799, and the first of May, 1801; the gold medal.

An account of the methods used in making the plantations, and the nature of the soil, together with proper *certificates* that the trees were in a thriving and healthy state two years at least after making the plantation, to be delivered to the Society on or before the first Tuesday in November, 1803.

N. B. With the above forest-trees, the seeds, cuttings, or plants, of such other trees as are adapted to the soil, and proper for underwood, may or may not be intermixed.

24. **FOREST-TREES.** To the person who shall have inclosed and planted, or set, the greatest number of acres (not less than ten) of land, that is incapable of being ploughed, such as the borders of rivers, the sides of precipices, and any land that has too many rocks, or that is not calculated to repay the expense of tillage, owing to the stiffness or poverty of the soil, the surface being too hilly, mountainous, or otherwise unfit for tillage, with the best sorts of forest-trees, namely, oak, Spanish chestnuts, ash, elm, beech, alder, willow, larch, spruce and silver fir, with or without screens of Scotch fir, adapted to the soil, and intended for timber trees, between the 1st of October, 1801, and the 1st of April, 1802; the gold medal.

25. For the second greatest quantity of land, not less than seven acres; the silver medal, or twenty guineas.

26. For the third greatest quantity of land, not less than five acres, the silver medal. A particular account of the methods used in making and managing the plantations, the nature of the soil, the probable number of each sort of plants, together with proper *certificates* that they were in a healthy and thriving state two years at least after making the plantation, to be delivered to the Society on or before the first Tuesday in November, 1804.

27, 28, 29. The same premiums are extended one year further. *Certificates* to be produced on or before the first Tuesday in Nov. 1805.

N. B. The candidates for planting all kinds of trees are to produce *certificates* that the respective plantations are properly fenced and secured, and particularly to state the condition of

the plants at the time of signing such certificates. Any information which the candidates for the foregoing premiums may choose to communicate, relative to the methods made use of in forming the plantations, or promoting the growth of the several trees, or any other observations that may have occurred on the subject, will be thankfully received.

30. **SECURING PLANTATIONS OF TIMBER-TREES, AND HEDGE-ROWS.** To the person who shall give to the Society the most satisfactory account, founded on experience, of the most effectual and least expensive method of securing young plantations of timber-trees, and hedge-rows, from hares and rabbits, as well as sheep and larger cattle, which at the same time shall be least subject to the depredations of wood-stealers, the silver medal, or twenty guineas. The accounts and *certificates* of the efficacy of the method to be produced to the Society on or before the first Tuesday in November, 1803.

31. The same premium is extended one year farther. The accounts and *certificates* to be produced on or before the first Tuesday in Nov. 1804.

32. **COMPARATIVE TILLAGE.** For the most satisfactory set of experiments, made on not less than eight acres of land, four of which to be trench-ploughed*, and four to be ploughed in the usual manner, in order to ascertain in what cases it may be advisable to shorten the operations of tillage, by adopting one trench-ploughing, for the purpose of burying the weeds, instead of the method, now in common use, of ploughing and harrowing the land three or four times, and raking the weeds together and burning them; the gold medal, or forty guineas. It is required that every operation and expense attending each mode of culture be fully and accurately described, and that proper *certificates* of the nature and condition of the land on which the experiments are made, together with a circumstantial account of the appearance of the subsequent crops during their growth; and also of the quantity and weight of the corn and straw under each mode of culture, or, in case of a green crop, the weight of an average sixteen perches, be produced to the Society on or before the first Tuesday in Feb. 1804.

33. **COMPARATIVE CULTURE OF WHEAT, BROAD-CAST, DRILLED, AND DIBBLED.** For the best set of experiments made on not less than twelve acres, four of which to be sown broad-cast, four drilled, and four dibbled, the two latter in equi-distant rows, in order fully to ascertain which is the most advantageous mode of cultivating wheat; the gold medal, or forty guineas. It is required that every ope-

* It is a common practice among gardeners, when they have a piece of very foul land, to dig it two spits, or about eighteen inches deep, shovelling the weeds to the bottom. This they call trenching.

ration and expense of each mode of culture be fully described; and that proper *certificates* of the nature and condition of the land on which the experiments are made, together with an *account* of the produce of the corn, the weight per bushel, and also of the straw, be produced to the Society on or before the first Tuesday in February, 1804.

34. **SPRING WHEAT.** To the person who, between the 10th of January and the 10th of April, 1803, shall cultivate the greatest quantity of wheat, not less than ten acres; the silver medal, or twenty guineas. It is required that the time of sowing and reaping be noticed; also a particular *account* of the species, cultivation, and expense attending it, with proper *certificates* of the nature and condition of the land on which the experiments were made, and the name of the crop, if any, which the same land bore the preceding year; together with an *account* of the produce, the weight per Winchester bushel; and a sample, not less than a quart, be produced to the Society on or before the second Tuesday in February, 1804.

It is supposed that sowing wheat early in the spring will not only allow more time to till the land but less for the growth of weeds; thus rendering the wheat as clean as a barley crop, and exhausting the soil much less than autumnal sowing. It may be seen in the 19th volume that the wheat usually sown in autumn may be put into the ground, with great success, so late as February or March, thus giving time to clear the ground from turnips, or to avoid a bad season.

35. **BEANS AND WHEAT.** To the person who shall have dibbled or drilled, between the 1st of December, 1802, and the 1st of April, 1803, the greatest quantity of land, not less than ten acres, with beans, in equi-distant rows, and hoed the intervals twice or oftener, and shall have sown the same land with wheat in the autumn of the year 1803; the silver medal, or twenty guineas. It is required that an *account* of the sort and quantity of beans, the time of dibbling or drilling, and of reaping or mowing them, the produce per acre thrashed, the expense of dibbling or drilling, hand or horse hoeing, the distance of the rows, and the quality of the soil, together with *certificates* of the number of acres, and that the land was afterwards actually sown with wheat, be produced on or before the second Tuesday in March, 1804.

36. **BEANS.** To the person who, in the year 1802, shall discover and cultivate, either by the drill or dibbling-method, on not less than five acres, a species of horse-beans or tick-beans, that will ripen their seeds before the 21st of August; the silver medal, or twenty guineas. It is required that a particular *account* of the bean, the cultivation, and the expense attending it, with proper *certificates* of the

nature and condition of the land on which the experiments are made, together with an *account* of the produce, the weight per Winchester bushel, and a sample of not less than a quart, be produced to the Society on or before the first Tuesday in December, 1803. It is apprehended that, if a bean should be brought into cultivation with the habits of the hotspur, or other early peas, that it would, in a great measure, escape the danger arising from the collier-insect, or other insects, and allow more time for the farmers to till the land for the subsequent crop of wheat. The *accounts* and *certificates* to be delivered on or before the first Tuesday in December, 1803.

37. The same premium is extended one year farther. The *accounts* and *certificates* to be delivered on or before the first Tuesday in December, 1804.

38. **COMPARATIVE CULTURE OF TURNIPS.** For the best set of experiments made on not less than eight acres of land, four of which to be sown broad-cast, and four drilled, to ascertain whether it is most advantageous to cultivate turnips by sowing them broad-cast and hand-hoeing them, or by drilling them in equi-distant rows, and hand or horse-hoeing the intervals; the silver medal, or twenty guineas. It is required that every operation and expense of each mode of culture be fully described, and that proper *certificates* of the nature and condition of the land, on which the experiments were made, together with the weight of the turnips grown, on a fair average sixteen perches of land, under each mode of culture, be produced to the Society on or before the first Tuesday in March, 1804. The object which the Society have in view in offering this premium is experimentally to ascertain the most advantageous method of growing turnips. To do this in a satisfactory manner, both the drilled and broad-cast crops should have the advantage of the most perfect cultivation consequently the drilled crops should have the intervals between the rows worked by the horse or hand-hoe, or by both these implements; and the rows should be either weeded or hand-hoed or both weeded and hand-hoed. The broad-cast crop should have every advantage which weeding and hand-hoeing can give it, consistently with leaving the soil a flat surface.

39. The same premium is extended one year farther. *Certificates* to be produced on or before the first Tuesday in March, 1805.

40. **PARSNIPS.** To the person who, in the year 1803, shall cultivate the greatest quantity of land, not less than five acres, with parsnips for the sole purpose of feeding cattle or sheep the gold medal, or thirty guineas. *Certificate* of the quantity of land so cultivated, with a particular *account* of the nature of the soil, the weight of the produce on sixteen perches, and also of the condition of the cattle or sheep fed

with the parsnips, and the advantages resulting from the practice, to be produced to the Society on or before the second day in Nov. 1804.

41. **BUCK WHEAT.** To the person who shall cultivate the greatest quantity of land with buck wheat, not less than thirty acres; the gold medal. It is required that the time of sowing and reaping be noticed, also a particular account of the species, cultivation, and expense attending it, the manner of reaping it, thrashing it, and housing the grain, with proper certificates of the nature and condition of the land on which the experiments were made, and the name of the crop, if any, which the same land bore the preceding year, together with an account of the produce, and a sample of the seed, not less than a quart, be produced to the Society on or before the second Tuesday in January, 1804.

42. For the next greatest quantity, not less than fifteen acres, on similar conditions; the silver medal. Information respecting its application to the feeding of cattle, hogs, and poultry, and other of its uses, is also desired. It is known to be particularly serviceable in furnishing honey to bees.

43. **RAISING GRASS SEEDS.** To the person who shall raise the greatest quantity of each of any of the following named grass seeds, viz.—Meadow fox-tail (*alopecurus pratensis*;) sweet scented vernal grass (*anthoxanthum odoratum*;) Timothy grass, meadow Fescue grass, smooth-stalked meadow grass (*poa pratensis*) rough-stalked meadow grass (*poa trivialis*); the silver medal, or ten guineas. It is required that certificates from persons who have viewed them in a proper state, to identify that they are one or other of the seeds above-mentioned, indicating clearly the particular species, and stating the quantity produced of such seeds, free from weeds or mixture of other grasses, together with proper samples of the seeds, be produced to the Society on or before the first day of February, 1804.

44. The same premium is extended one year farther. Certificates to be produced on or before the first day of February, 1805.

45. **ROTATION OF CROPS.** To the person who shall, between the 10th of August, 1801, and the 10th of September, 1803, cultivate the greatest quantity of land, not less than forty acres, in the following rotation, viz.—1st, winter-tares; 2d, turnips; and 3d, wheat; and apply the two former crops, in the best and most farmer-like manner, to the rearing, supporting, and fattening horses, cattle, sheep, or hogs, on the land which produced the crops; the gold medal, or one hundred guineas.

46. For the next in quantity and merit, on or less than thirty acres; the silver medal, or fifty guineas.

47. For the next in quantity and merit, on or less than twenty acres; the silver medal.

It is required that every operation and expense be fully described, and that satisfactory certificates of the nature and condition of the soil on which the crops have grown, together with an account of their appearance, the number of horses and cattle, sheep or hogs, fed by the two green crops, and, as near as possible, the improved value of the live stock by the consumption of those crops, and also the quantity of wheat per acre, and its weight per bushel, be produced to the Society on or before the first day of November, 1804.

It is presumed that very great advantages will arise to such agriculturists as shall adopt this rotation of crops on a dry soil. They will be enabled, with the addition of a few acres of turnip-rooted cabbage for spring-food, to keep such large flocks of sheep and herds of neat cattle as may secure a sufficient quantity of manure to fertilize their land in the highest degree, and in every situation. It is farther conceived that wheats which will bear sowing in the spring will be particularly suitable for this premium.

48, 49, 50. The same premiums are extended one year farther. Certificates to be delivered on or before the first day of November, 1805.

51. **PRESERVING TURNIPS.** To the person who shall discover to the Society the best and cheapest method of preserving turnips perfectly sound, and in every respect fit for the purpose of supporting and fattening sheep and neat cattle, during the months of February, March, and April; the gold medal, or thirty guineas. It is required that a full and accurate account of the method employed, and the expense attending the process, together with certificates that the produce of four acres at the least have been preserved according to the method described, and applied to the feeding of sheep and neat cattle; that the whole were drawn out of the ground before the first day of February, in order to clear the greater part of it previous to its being prepared for corn, and to save the soil from being exhausted by the turnips; and also of the weight of an average sixteen perches of the crop; be produced to the Society on or before the first Tuesday in November, 1804.

N. B. It is recommended to those who may be induced to try the necessary experiments for obtaining this and the following four premiums to consider the method employed for the preservation of potatoes in ridges, (which the growers call pies,) and also the propriety of adopting a similar method in cases where they are previously frozen. It is supposed that, in the latter instance, the addition of ice or snow, and the construction of the ridges upon a large scale, may be sufficient to preserve the freezing temperature till the vegetables are wanted for the use of cattle or sheep, at which time they may be thawed by immersion in cold

water, and the rot which a sudden thaw produces may be prevented.

52. For the next in quantity and merit, on not less than two acres, the silver medal, or fifteen guineas.

53. PRESERVING CABBAGES. To the person who shall discover to the Society the best and cheapest method of preserving drum headed cabbages perfectly sound, and in every respect fit for the purpose of supporting and fattening sheep and neat cattle during the months of February, March, and April; the gold medal, or thirty guineas.

54. For the next in quantity and merit, on not less than two acres, the silver medal or fifteen guineas. Conditions the same as for preserving turnips, *Cl. 51.* And the accounts to be produced on or before the first Tuesday in November, 1804.

55. PRESERVING CARROTS, PARSNIPS, OR BEETS. To the person who shall discover to the Society the best and cheapest method of preserving carrots, parsnips, or beets, perfectly sound, and in every respect fit for the purpose of supporting horses, and fattening sheep and neat cattle, during the months of February, March, and April; the silver medal, or fifteen guineas. Conditions the same as for preserving turnips, *Cl. 51.* and the accounts to be delivered in on or before the first day in November, 1804.

56. PRESERVING POTATOES. To the person who shall discover to the Society the best and cheapest method of preserving potatoes, two or more years, perfectly sound, without vegetating, and in every other respect fit for the purpose of sets and the use of the table, and, consequently, of supporting and fattening cattle; the silver medal, or twenty guineas. It is required, that a full and accurate account of the method employed, and the expense attending the process, with *certificates* that one hundred bushels at the least have been preserved according to the method described, and that one or more bushels of the same potatoes have been set, and produced a crop without any apparent diminution of their vegetative power; and also that they have been used at table, with entire satisfaction to the person who eat of them, together with a sample of one bushel, be sent to the Society on or before the first Tuesday in November, 1804.

57. MAKING MEADOW-HAY IN WET WEATHER. To the person who shall discover to the Society the best and cheapest method, superior to any hitherto practised, of making meadow-hay in wet weather; the gold medal, or thirty guineas. A full account of the method employed, and of the expense attending the process, with not less than fifty-six pounds of the hay; and *certificates* that at least the produce of six acres of land has been made according to the method described, and that the whole is of equal quality with the

samples; to be produced on or before the Tuesday in January, 1804.

58. HARVESTING CORN IN WET WEATHER. To the person who shall discover to the Society the best and cheapest method, prior to any hitherto practised, of harvesting corn in wet weather; the gold medal, or thirty guineas. A full account of the method employed, and of the expense attending the process, with not less than two sheaves of the corn and *certificates* that at least the produce of six acres has been harvested according to the method described, and that the whole is of equal quality with the samples, to be produced on or before the first Tuesday in January, 1804.

59. ASCERTAINING THE COMPARATIVE PARTS OF ARABLE LAND. To the person who shall produce to the Society the most satisfactory set of experiments to ascertain due proportion of the several component parts of rich arable land, in one or more counties of Great Britain, by an accurate analysis of and who having made a like analysis of a poor arable land, shall, by comparing the component parts of each, and thereby ascertain the deficiencies of the poor soil, improve the quantity of it, not less than one acre, by addition of such parts as the former experiments shall have discovered to be wanting therein, and therefore probably the cause of sterility; the gold medal, or forty guineas is required that the manurings, ploughings, crops, of the improved land, be the same as the improvement as before; and that a full account of the produce in each state, of weather, and of the various influencing circumstances, together with the method made use of in analysing the soils, be produced, with *per certificates* and the chemical results of analysis, which are to remain the property of the Society, on or before the last Tuesday in February, 1804.

It is expected that a quantity, not less than six pounds, of the rich, of the poor, and of the improved soils, be produced with the *certificates*.

60. GAINING LAND FROM THE SEA. To the person who shall produce to the Society an account, verified by actual experiment, of having gained the greatest quantity of land from the sea, not less than fifty acres, on the coast of Great Britain or Ireland; the gold medal. *Certificates* of the quantity of land, that the experiments were begun after the first of January, 1797, to be produced to the Society on or before the last Tuesday in October, 1803.

61. The same premium is extended year farther. *Certificates* to be produced on or before the last Tuesday in October, 1804.

62. The same premium is extended year farther. *Certificates* to be produced on or before the last Tuesday in October, 18

63. **IMPROVING LAND LYING WASTE.** For the most satisfactory account of the best method of improving any of the following soils, being land lying waste or uncultivated, viz. clay, gravel, sand, chalk, peat-earth and bog, verified by experiments on not less than fifty acres of land; the gold medal, or thirty guineas.

64. For the next greatest quantity, not less than thirty acres, the silver medal, or twenty guineas. It is required that the land before such improvement be absolutely uncultivated, and in a great measure useless, and that, in its improved state, it be inclosed, cultivated, and divided into closes. *Certificates* of the number of acres, of the quality of the land so improved, with a full account of every operation and expense attending such improvement, the state it is in as to the proportion of grass to arable, and the average-value thereof, to be produced on or before the first Tuesday in February, 1804.

65. **MANURES.** For the most satisfactory set of experiments, to ascertain the comparative advantages of the following manures, used as top-dressings on grass or corn land, viz. soot, coal-ashes, wood-ashes, lime, gypsum, night-soil, or any other fit article; the gold medal, or the silver medal and twenty guineas. It is required that the above experiments be made between two or more of the above-mentioned manures, and that not less than two acres of land be dressed with each manure. An account of the nature of the soil, quantity and expense of the manure and crops, with *certificates*, to be produced on or before the last Tuesday in February, 1804.

66. The same premium is extended one year farther. The *accounts* and *certificates* to be produced on or before the last Tuesday in February, 1805.

67. **RAISING WATER FOR THE IRRIGATION OF LAND.** To the person who shall discover to the Society the cheapest and most effectual method of raising water in quantities sufficient to be beneficially employed for the purpose of irrigating land, superior to and cheaper than any other method now in use; the gold medal, or fifty guineas. A model on a scale of one inch to a foot, with *certificates* that a machine at large on the same construction has been used, specifying the quantity of water delivered in gallons per hour, and the height to which it was raised, to be produced to the Society on or before the first of March, 1804.

68. The same premium is extended one year farther. *Certificates* to be produced on or before the first of March, 1805.

69. **PARING PLOUGH.** To the person who shall invent and produce to the Society a machine or plough for the purpose of paring land preparatory to burning, superior to any hitherto

known, or in use for such purpose, and to be worked by not more than one man and two horses, the silver medal, or twenty guineas.

The machine and *certificates* that at least three acres have been pared by it in a proper manner, to be produced to the Society on or before the 1st of January, 1804.

70. **MACHINE FOR DIBBLING WHEAT.** To the person who shall invent a machine, superior to any hitherto known or in use, to answer the purpose of dibbling wheat, by which the holes for receiving the grain may be made at equal distances and proper depths; the silver medal, and ten guineas. The machine, with *certificates* that at least three acres have been dibbled by it, to be produced to the Society on or before the second Tuesday in January, 1804. Simplicity and cheapness in the construction will be considered as principal parts of its merit.

71. **MACHINE FOR REAPING OR MOWING CORN.** For inventing a machine to answer the purpose of mowing or reaping wheat, rye, barley, oats, or beans, by which it may be done more expeditiously and cheaper than by any method now practised, provided it does not shed the corn or pulse more than the methods in common practice, and that it lays the straw in such a manner that it may be easily gathered up for binding; the gold medal, or thirty guineas. The machine, with *certificates* that at least three acres have been cut by it, to be produced to the Society on or before the second Tuesday in December, 1803. Simplicity and cheapness in the construction will be considered as principal parts of its merit.

72. **THRASHING-MACHINE.** To the person who shall invent a machine by which corn of all sorts may be thrashed more expeditiously, effectually, and at a less expense, than by any method now in use; the gold medal, or thirty guineas. The machine, or a model, with proper *certificates* that such a machine has been usefully applied, that at least thirty quarters have been thrashed by it, and of the time employed in the operation, to be produced to the Society on or before the last Tuesday in February, 1804.

73. **DESTROYING THE GRUB OF THE COCKCHAFER.** To the person who shall discover to the Society an effectual method, verified by repeated and satisfactory trials, of destroying the grub of the cockchafer, or of preventing or checking the destructive effects which always attend corn, peas, beans, and turnips, when attacked by those insects; the gold medal, or thirty guineas. The *accounts*, with proper *certificates*, to be produced on or before the first Tuesday in January, 1804.

74. **DESTROYING WORMS.** To the person who shall discover to the Society an effectual method, verified by repeated and satisfactory trials, of destroying worms; or of preventing the destructive effects they occasion on

corn, beans, peas, or other pulse; the gold medal, or thirty guineas. The *accounts*, with proper *certificates*, to be produced to the Society on or before the first Tuesday in Jan. 1804.

75. DESTROYING THE FLY ON HOPS. To the person who shall discover to the Society an easy and efficacious method of destroying the fly on hops, superior to any hitherto known or practised, on not less than four acres of hop ground, the gold medal, or thirty guineas. *Accounts* and *certificates* to be delivered to the Society on or before the first Tuesday in February, 1804.

76. PREVENTING THE BLIGHT, OR RAVAGES OF INSECTS, ON FRUIT-TREES AND CULINARY PLANTS. To the person who shall discover to the Society the most effectual method of preventing the blight, or ravages of insects, on fruit trees and culinary plants, superior to any hitherto known or practised, and verified by actual and comparative experiments; the gold medal, or thirty guineas. The *accounts*, with proper *certificates*, to be delivered to the Society on or before the second Tuesday in November, 1803.

77. The same premium is extended one year farther. The *accounts* and *certificates* to be delivered on or before the second Tuesday in November, 1804.

78. REMOVING THE ILL EFFECTS OF BLIGHTS, OR INSECTS. To the person who shall discover to the Society the most effectual method of removing the ill effects of blights, or insects, on fruit-trees and culinary plants, superior to any hitherto known or practised, and verified by actual and comparative experiments; the gold medal, or thirty guineas. The *accounts* and *certificates* to be delivered to the Society on or before the first Tuesday in February, 1804.

79. CURE OF THE ROT IN SHEEP. To the person who shall discover to the Society the best and most effectual method of curing the rot in sheep, verified by repeated and satisfactory experiments; the gold medal, or fifty guineas. It is expected that the candidates furnish accurate *accounts* of the symptoms and cure of the disease, together with the imputed cause thereof, and the actual or probable means of prevention, which, with proper *certificates*, must be delivered to the Society on or before the first Tuesday in February, 1804.

80. CURE OF THE FOOT-ROT IN SHEEP. To the person who shall discover to the Society the best and most effectual method of curing the foot-rot in sheep; the gold medal, or thirty guineas.

It is required that the cure be ascertained by repeated and satisfactory experiments, and the method of performing it be verified by proper *certificates* delivered to the Society

on or before the first Tuesday in February, 1804.

81. PREVENTING THE ILL EFFECTS OF FLIES ON SHEEP. To the person who shall discover to the Society the most effectual method of protecting sheep from being disturbed and injured by flies; the silver medal, or twenty guineas. It is required that the method be ascertained by repeated experiments, and that a *certificate* of its efficacy be delivered to the Society on or before the 1st Tuesday in December, 1803.

82. PROTECTING SHEEP. To the person who, in the year 1803, shall protect the greatest number of sheep, not fewer than one hundred, by hovels, sheds, or any other means, and give the most satisfactory account, verified by experiment, of the advantages arising from the practice of protecting sheep from the inclemency of the weather, by hovels, sheds, or any other means; the silver medal, or twenty guineas. A particular *account* of the experiments made, with the advantages arising therefrom, together with the expense, and *certificates* of its utility, to be produced to the Society on or before the first Tuesday in March, 1804.

83. The same premium is extended one year farther. The *accounts* and *certificates* to be delivered on or before the first Tuesday in March, 1805.

N. B. It is required that the *certificates* shall specify the length of time the sheep were so protected, and the manner in which they were maintained during that time; together with the general method of managing them.

84. IMPROVING THE CONDITION OF THE LABOURING POOR, BY ERECTING COTTAGES, AND APPORTIONING LAND. To the person who, in the year 1802, shall erect the greatest number of cottages for the accommodation of the labouring poor, and apportion not less than two acres of land to each cottage; the gold medal. The *accounts* and *certificates* to be delivered to the Society on or before the first Tuesday in February, 1804.

85. The same premium is extended one year farther. The *accounts* and *certificates* to be delivered to the Society on or before the first Tuesday in February, 1805.

86. IMPROVING THE CONDITION OF THE LABOURING POOR BY APPORTIONING LAND TO COTTAGES. To the person who, in the year 1802, shall apportion to the greatest number of cottages already built upon his or her estate, any quantity of land, not less than two acres to each cottage, for the better accommodation of the respective inhabitants; the gold medal. The *accounts* of the number of cottages, and of the quantity of land apportioned to each, to be delivered to the Society, with proper *certificates*, on or before the first Tuesday in February, 1804.

87. The same premium is extended one year farther. The *accounts* and *certificates* to be delivered on or before the first Tuesday in February, 1805.

88. CULTURE OF HEMP IN CERTAIN PARTS OF SCOTLAND. The Society for the Encouragement of Arts, Manufactures, and Commerce wishing to encourage the growth of hemp for the use of the navy, in certain parts of Scotland, comprehending the whole county of Argyle, that part of Perthshire situated to the north of the river Tay, and west of the Military Road (see Ainslie's Map of Scotland) leading from Logierait to the County of Inverness, and such other parts of Scotland as lie north of Inverness-shire, offers to the person who shall sow with hemp, in drills at least eighteen inches asunder, the greatest quantity of land in the above-mentioned district, not less than fifty acres statute measure, in the year 1803, and shall at the proper season cause to be plucked the summer hemp (or male hemp bearing no seed) and continue the winter hemp (or female hemp bearing seed) on the ground until the seed is ripe; the gold medal, or fifty guineas.

89. To the person who shall sow with hemp, (in drills at least eighteen inches asunder) the next greatest quantity of land in the same above-mentioned district, not less than twenty-five acres statute measure, in the year 1803, and shall at the proper season cause the same to be plucked as above-mentioned; the silver medal, or twenty-five guineas. *Certificates* of the number of acres, of the distance of the drills, of the plucking of the hemp, with a general account of the soil, cultivation, and produce, to be delivered to the Society, along with fourteen pounds of the hemp, and two quarts of the seed, on or before the second Tuesday in January, 1804.

PREMIUMS FOR DISCOVERIES AND IMPROVEMENTS IN CHEMISTRY, DYING, AND MINERALOGY.

90. PRESERVING SEEDS OF VEGETABLES. For the best methods of preserving the seeds of plants in a state fit for vegetation a longer time than has hitherto been practised, such method being superior to any known to the public, and verified by sufficient trial, to be communicated to the Society on or before the first Tuesday in December, 1803; the gold medal, or thirty guineas.

91. PREVENTING THE DRY-ROT IN TIMBER. To the person who shall discover to the Society the cause of the dry-rot in timber, and disclose a certain method of prevention superior to any hitherto known; the gold medal, or thirty guineas. The *accounts* of the cause, and method of prevention, confirmed by repeated experiments, to be produced to

the Society on or before the second Tuesday in December, 1803.

92. PRESERVING SALTED PROVISIONS FROM BECOMING RANCID OR RUSTY. To the person who shall discover to the Society the best, cheapest, and most efficacious method of preserving salted provisions from growing rancid or rusty; the gold medal, or thirty guineas. A full description of the method, with proper *certificates* that it has been found, on repeated trials, to answer the purpose intended, to be produced to the Society on or before the first Tuesday in February, 1804.

93. CLEARING FEATHERS FROM THEIR ANIMAL OIL. To the person who shall discover to the Society the best and most expeditious method superior to any hitherto practised, of clearing goose-feathers from their offensive animal oil, for the use of upholders, in making beds, cushions, &c. the silver medal, or twenty guineas. A quantity of such feathers unstripped and so cleared, not less than forty pounds weight, with a full *account* of the process, to be produced to the Society on or before the first Tuesday in February, 1804.

94. REFINING WHALE OR SEAL OIL. For disclosing to the Society an effectual method of purifying whale or seal oil from the glutinous matter that incrusts the wicks of lamps and extinguishes the light, though fully supplied with oil; the gold medal, or fifty guineas. It is required that the whole of the process be fully and fairly disclosed, in order that satisfactory experiments may be made by the Society to determine the validity of the claim; and *certificates* that not less than twenty gallons have been purified according to the process delivered in, together with two gallons of the oil, in its unpurified state, and two gallons so refined, be produced to the Society on or before the second Tuesday in February, 1804.

95. MANUFACTURING TALLOW-CANDLES. To the person who shall discover to the Society a method of hardening or otherwise preparing tallow, so that candles may be made of it which will burn as clear and with as small a wick as wax candles, without running, and may be afforded at a less expense than any at present made with spermaceti; the gold medal, or thirty guineas. *Certificates* that 112lb. of such tallow have been made into candles, and 12lb. of the candles made thereof, to be produced to the Society on or before the second Tuesday in January, 1804.

96. CANDLES FROM RESIN OR OTHER SUBSTANCES. To the person who shall discover to the Society the best method of making candles of resin, or any other substance, fit for common use, at a price much inferior to those made of tallow only; the gold medal, or thirty guineas. Six pounds at least of the

candles so prepared, with an *account* of the process, to be delivered to the Society on or before the first Tuesday in December, 1803.

97. METHOD OF SEPARATING SUGAR IN A SOLID FORM FROM TREACLE. To the person who shall discover to the Society the best method of separating sugar from treacle in a solid form, at such an expense as will render it advantageous to the public; the gold medal, or fifty guineas. A quantity of the sugar so prepared in a solid form, not less than thirty pounds weight, with an *account* of the process, and *certificates* that not less than one hundred weight has been prepared, to be produced to the Society on or before the first Tuesday in February, 1804.

98. PROOF-SPIRIT. To the distiller who, in the year 1803, shall make the greatest quantity, not less than one hundred gallons, of a clean marketable spirit, from articles not the food of man or cattle, equal in strength or quality to the proof-spirit now in use, and at a rate not higher than the spirit produced from corn or melasses; the gold medal, or one hundred guineas. Ten gallons of the spirit, together with proper *certificates*, and a full *account* of the expense and mode of making it, to be produced to the Society on or before the first Tuesday in January, 1804.

99. INCREASING STEAM. To the person who shall invent and discover to the Society a method, verified by actual experiments, of increasing the quantity or force of steam, in steam-engines, with less fuel than has hitherto been employed, provided that in general the whole amount of the expenses in using steam-engines may be considerably lessened; the gold medal, or thirty guineas. To be communicated to the Society on or before the first Tuesday in January, 1804.

100. SUBSTITUTE FOR TAR. To the person who shall invent and discover to the Society the best substitute for Stockholm tar, equal in all its properties to the best of that kind, and prepared from materials the produce of Great Britain; the gold medal, or one hundred guineas. A quantity of the substitute, not less than one hundred weight, with *certificates* that at least one ton has been manufactured, and that it can be afforded at a price not exceeding that of the best foreign tar, together with an *account* of the process, to be delivered to the Society on or before the first Tuesday in March, 1804.

101. PREPARATION OF TAN. To the person who shall prepare in the most concentrated form, so as to be easily portable, and at a price applicable to the purposes of manufactures, the largest quantity, not less than one hundred weight, of the principle called by the French *tannin*, which abounds in oak-bark and many other vegetable substances; the gold medal, or fifty guineas. *Certificates* of the

above quantity having been prepared, and a sample of not less than 28lb. to be produced to the Society on or before the last Tuesday in January, 1804.

102. INDELIBLE INK. To the person who shall discover to the Society, a method of making a black ink proper for writing, superior to any at present known, indestructible by chemical applications, and not dearer than that which is now in common use; the silver medal or fifteen guineas. *Certificates* that not less than two gallons of such ink have been actually prepared and found to possess the qualities abovementioned, with a full detail of the process of making it, and two quarts of the ink, to be delivered to the Society on or before the second Tuesday in January, 1804.

103. PREPARATION OF A RED STAIN FOR COTTON CLOTH. To the person who shall communicate to the Society, the cheapest and most effectual method of printing or staining cotton cloths with a red colour, by an immediate application of the colouring-matter to the cloth, equally beautiful and durable with the red colours now generally procured from decoctions of madder; the gold medal, or thirty guineas. *Certificates* that the above process has been advantageously used on ten pieces of calico, each twenty-one yards or upwards in length, one piece of the calico so printed, a quart of the colour in a liquid state, and a full *account* of the preparation and application, to be produced to the Society on or before the second Tuesday in Jan. 1804.

104. PREPARATION OF A GREEN COLOUR FOR PRINTING COTTON CLOTH. To the person who shall communicate to the Society the best and cheapest method of printing with a full green colour on cotton cloth, by an immediate application of the colouring matter from a wooden block to the cloth, equally beautiful and durable as the colours now formed from the complicated process of the decoction of weld-on alumine and the solutions of indigo by earths or alkaline salts; the gold medal, or thirty guineas. *Certificates* and conditions as for premium 103.

105. SUBSTITUTE FOR THE BASIS OF PAINT. To the person who shall produce to the Society the best substitute, superior to any hitherto known, for the basis of paint, equally proper for the purpose as the white lead now employed; such substitute not to be of a noxious quality, and to be afforded at a price not materially higher than that of white lead; the gold medal, or one hundred guineas. A quantity of the substitute, not less than 50lb. weight, with an *account* of the process used in preparing it, and *certificates* that at least one hundred weight has been manufactured, to be produced to the Society on or before the first Tuesday in January, 1804.

106. RED PIGMENT. To the person who

shall discover to the Society a full and satisfactory process for preparing a red pigment, fit for use, in oil and water, equal in tone and brilliancy to the best carmines and lakes now known or in use, and perfectly durable; the gold medal, or thirty guineas. One pound weight of such colour, and a full disclosure of its preparation, to be produced to the Society on or before the first Tuesday in February, 1804.

N. B. It is not required that the colour should resist the action of fire or chemical applications, but remain unaltered by the common exposure to strong light, damp, and noisome vapours.

107. **ULTRAMARINE.** To the person who shall prepare an artificial ultramarine, equal in colour, brilliancy, or durability, to the best prepared from lapis lazuli, and which may be afforded at a cheap rate; the gold medal, or thirty guineas. The conditions are the same as in the preceding premium for the red pigment.

108. **ANALYSIS OF BRITISH MINERALS.** To the person who shall communicate to the Society, the most correct analysis of any mineral production of Great Britain, hitherto either unexamined, or not examined with accuracy; the gold medal. The analysis and sufficient specimens to be produced to the Society on or before the first Tuesday in Jan. 1804.

109. **STATUARY MARBLE.** To the person who shall discover, within Great Britain or Ireland, a quarry of white marble fit for the purposes of statuary, and equal in all respects to those kinds now imported from Italy; the gold medal, or one hundred pounds. A block of at least three feet in length, two in height, and two in width, with an account of the situation of the quarry, and *certificates* of its possessing considerable extent, to be produced to the Society on or before the first Tuesday in February, 1804.

N. B. In order to prevent useless expense or trouble to the claimant in forwarding so large a block, the Society will be ready to examine any smaller specimen of the marble, and express their opinion of its value to the candidate before the block required by the above premium is produced.

110. **PREPARATION OF SULPHURIC ACID FROM SULPHUR WITHOUT THE USE OF ANY NITRIC SALT.** To the person who shall prepare the largest quantity (not less than one ton) of sulphuric acid from sulphur, without any nitric salt, of a specific gravity, not inferior to the best sulphuric acid of commerce; the gold medal, or fifty guineas. *Certificates* that not less than the above quantity of such an acid has been prepared, together with a sample, to be produced to the Society on or before the first Tuesday in January, 1804.

111. **PREPARATION OF ANY ALKALINE OR EARTHY NITRATE.** To the person who shall prepare, in Great Britain, the largest quantity, not less than one hundred weight, of any salt of nitric acid, with either earths or alkalies, by a method superior to and as cheap as those hitherto practised; the gold medal, or one hundred guineas. *Certificates* of the above quantity having been prepared, and a sample of not less than 28lb. to be produced to the Society on or before the last Tuesday in January, 1804.

112. **FINE BAR-IRON.** To the person, in Great Britain, who shall make the greatest quantity of bar-iron, not less than ten tons, with coak, from coak-pigs, equal in quality to the best iron imported from Sweden or Russia, and as fit for converting into Steel; the gold medal, or fifty guineas. Samples, not less than one hundred weight, with *certificates* that the whole quantity is of equal quality, to be produced to the Society on or before the first Tuesday in January, 1804.

113. **PRESERVING IRON FROM RUST.** To the person who shall invent and discover to the Society a cheap composition, superior to any now in use, which shall effectually preserve wrought iron from rust, the gold medal, or fifty guineas. A full description of the method of preparing the composition, with *certificates* that it has stood at least two years unimpaired, being exposed to the atmosphere during the whole time, to be produced to the Society, with ten pounds weight of the composition, on or before the first Tuesday in January, 1804.

114. **REFINING BLOCK-TIN.** To the person who shall discover to the Society the best method of purifying or refining block-tin, so as to render it fit for the finest purposes to which grain-tin is now applied, and not higher in price; the gold medal, or fifty guineas. *Certificates* that not less than three tons have been refined or purified, with a full detail of the process, and a quantity, not less than one hundred weight, of the tin so refined, to be produced to the Society on or before the first Tuesday in January, 1804.

115. **GLAZING EARTHEN-WARE WITHOUT LEAD.** To the person who shall discover to the Society the cheapest, safest, most durable, and most easily fusible, composition, fit for the purpose of glazing the ordinary kinds of earthen-ware, without any preparation of lead, and superior to any hitherto in use; the gold medal, or thirty guineas. Specimens of the ware so glazed, with proper *certificates* of its having succeeded, and a sample of the materials made use of, to be produced to the Society on or before the first Tuesday in February, 1804.

116. **REFINING COPPER FROM THE ORE.** To the person who shall discover to the So-

ciety the best method of separating, purifying, and refining copper from the ore, so as to render it fit for the finest purposes to which fine copper is now applied, and by a process superior to any hitherto known or in use, and not higher in price; the gold medal, or fifty guineas. *Certificates* that not less than three tons have been so prepared or refined, and a quantity not less than one hundred weight of the copper so refined, to be produced to the Society on or before the first Tuesday in February, 1804.

117. MINERALOGICAL MAP OF ENGLAND AND WALES. To the person who shall complete and publish an accurate mineralogical map of England and Wales, on a scale of not less than ten miles to an inch, containing an account of the situation of the different mines therein, and describing the kinds of minerals thence produced; the gold medal, or fifty guineas. *Certificates* of the accuracy of such map, together with the map, to be produced to the Society on or before the first Tuesday in February, 1804. The map to remain the property of the Society.

118. MINERALOGICAL MAP OF IRELAND. The same premium is offered for a mineralogical map of Ireland on similar conditions.

119. MINERALOGICAL MAP OF SCOTLAND. The same premium is offered for a mineralogical map of Scotland on similar conditions.

120. NATURAL HISTORY. To the author who shall publish, in the year 1803, the natural history of any county in England or Wales; the gold medal, or fifty guineas. It is required that the several natural productions, whether animal, or vegetable, or mineral, peculiar to the county, or found therein, be carefully and specifically arranged and described, in order that the public may be enabled to judge what arts or manufactures are most likely to succeed in such county. The work to be delivered to the Society on or before the last Tuesday in January, 1804.

PREMIUMS IN POLITE ARTS.

121. HONORARY PREMIUMS FOR DRAWING, BY NOBILITY. For the best original drawing, of any kind, by young gentlemen under the age of twenty-one, sons or grandsons of peers, or peeresses in their own right, of Great Britain or Ireland, to be produced on or before the first Tuesday in March, 1804; the honorary medal of the Society in gold.

122. The same in silver for the best copy.

123, 124. The same premiums will be given, on the like conditions, to young ladies, daughters or grand-daughters of peers, or peeresses in their own right, of Great Britain or Ireland.

125. HONORARY PREMIUMS FOR DRAWING, BY GENTLEMEN. For the best original drawing, of any kind, by young gentlemen under the age of twenty-one; to be produced on or before the first Tuesday in March, 1804; the gold medal.

126. For the best copy, the silver medal.

127, 128. The same premiums will be given for drawings by young ladies.

N.B. As the foregoing honorary premiums are intended only for such of the nobility and gentry as may hereafter become patrons or patronesses of the arts; persons professing any branch of the polite arts, or any business dependent on the arts of design, or the sons or daughters of such persons, will not be admitted candidates in these classes.

129. DRAWINGS OF OUTLINES. For the best outline, after a cast, in plaster, of the Apollo Belvidere, by persons of either sex, under the age of sixteen, the figure not less than eighteen inches; to be produced on or before the last Tuesday in February, 1804; the greater silver pallet.

130. For the next in merit; the lesser silver pallet.

131. DRAWINGS OF LANDSCAPES. For the best drawing in water colours of a landscape after nature, not less than 18 inches by 12, by persons of either sex, under twenty-one years of age, to be produced on or before the last Tuesday in February, 1804; the gold pallet.

132. For the next in merit, the greater silver pallet. Each candidate must mention, on the front of the drawing, whence the view was taken.

133. HISTORICAL DRAWINGS. For the best historical drawing, being an original composition, of five or more human figures; the height of the principal figure not less than eight inches; to be produced on or before the third Tuesday in February, 1804; the gold pallet.

134. For the next in merit; the greater silver pallet.

135. LINE ENGRAVINGS OF LANDSCAPES. For the best line engraving of a landscape, published in the year 1803, the size of the engraving not less than eighteen inches by fourteen; the gold medal. To be produced to the Society on or before the last Tuesday in January, 1804; and the impression to which the premium is adjudged to remain the property of the Society.

136. For the next in merit; the silver medal, on similar conditions.

137. LINE ENGRAVINGS OF HISTORICAL SUBJECTS. For the best line engraving published in the year 1803, of an historical subject, the size of the engraving not less than eighteen inches by fourteen; the gold medal.

138. For the next in merit; the silver medal.

Conditions, &c. the same as in classes 133 and 136.

139, 140, 141, 142. The same premiums are extended one year further.

N.B. It is not necessary in the classes of line engravings, for the artist's name to be concealed. The first aquafortis proof of the above plates are required to be sent in with the finished impression, and *certificates* that the etchings are the entire work of the candidate.

143. MODEL IN CLAY OR PLASTER. For the best model in clay or plaster of an ornamental design for the purpose of embellishing works of Architecture; the silver medal, or twenty guineas. To be produced to the Society on or before the last Tuesday in January, 1804. The model not to be less than thirty inches by twelve.

144. PERSPECTIVE DRAWINGS OF MACHINES. For the best perspective drawing of machines by persons under eighteen years of age; the greater silver pallet. To be produced to the Society on or before the last Tuesday in January, 1804.

145. For the next in merit; the lesser silver pallet, on similar conditions.

146. ENGRAVING ON WOOD, OR METAL BLOCKS, &c. For the best engraving on wood or metal blocks, or on any other material, so that the same be rendered capable of composition with the letter press, of any allegorical or other subject suited to the embellishment of letter press, the gold pallet.

147. For the next in merit, the greater silver pallet. Two or more impressions along with the block to be produced to the Society on or before the last Tuesday in February, 1804. The impressions, but not the block, to remain the property of the Society.

148. BRONZES. For the best drapery figure or group cast in bronze; if a single figure, not less than twelve inches high; and, if a group, not less than nine inches; and which will require the least additional labour to repair; the gold medal, or the silver medal and twenty guineas. The cast to be exhibited to the Society before it is begun to be repaired, with the original figure or group, on or before the first Tuesday in February, 1804, together with a full explanation of the whole process.

THE FOLLOWING PREMIUM (CLASS 149), IS OFFERED IN CONFORMITY TO THE WILL OF THE LATE JOHN STOCK, OF HAMPSTEAD, ESQ.

149. ORNAMENTAL DRAWINGS FOR ARCHITECTURAL DESIGNS. For the best ornamental drawing for the purpose of embellishing architectural designs; a silver medal with the following engraved inscription: *The Premium given by the Society for the Encouragement of Arts, Manufactures, and Com-*

merce, in conformity to the Will of John Stock, of Hampstead, Esq. The drawing to which the premium is adjudged to remain the property of the Society.

PREMIUMS FOR ENCOURAGING AND IMPROVING MANUFACTURES.

150. MACHINE FOR CARDING SILK. For the best machine, superior to any now in use, for carding waste silk equally well as by hand; to be produced, together with a specimen of the cardings, on or before the first Tuesday in November, 1803; the silver medal, or twenty guineas.

151. CLOTH FROM HOP-STALKS, &c. To the Person who shall produce to the Society the greatest quantity, not less than thirty yards of cloth at least twenty-seven inches wide, made in Great Britain, of hop-stalks or bines, or other raw vegetable substances, the produce of Great Britain or Ireland, superior to any hitherto manufactured from such substances, and which can be generally afforded as cheap as cloth of equal quality and appearance now made from hemp, flax, or cotton, and much finer in quality than any hitherto manufactured in England from hop-stalks, &c. the gold medal, or thirty guineas. One pound of the thread of which the cloth is made, and thirty yards of the cloth, together with proper *certificates* that the whole is manufactured from hop-stalks or bines, &c. to be produced to the Society on or before the first Tuesday in December, 1803.

N.B. The Society is already in the possession of cloth made in England from hop-stalks or bines, which may be inspected by application to the housekeeper.

152. WICKS FOR CANDLES OR LAMPS. To the person who shall discover to the Society a method of manufacturing hop-stalks or bines, or any other cheap material, the growth of Great Britain, so as to render them equally fit for the purpose of supplying the place of cotton, for wicks of candles or lamps; twenty guineas. Samples, not less than five pounds weight, of the wicks so prepared to be produced to the Society, with *certificates* that the whole quantity is equal in quality to the sample, on or before the second Tuesday in January, 1804.

153. PAPER FROM RAW VEGETABLE SUBSTANCES. To the person, in Great Britain, who shall, between the first of January, 1803, and the first of January, 1804, make the greatest quantity, and of the best quality, (not less than ten reams) of good and useful paper, from raw vegetable substances, the produce of Great Britain or Ireland, of which one hundred weight has not been used in manufacturing paper previous to January, 1802, superior to any hitherto manufactured from such sub-

stances, and which can be generally afforded as cheap as paper of equal quality and appearance now made from rags; twenty guineas.

N. B. The object of the Society being to add to the number and quantity of raw materials used in this manufacture, it is their wish to include every useful sort of paper, and to introduce such natural products as can be easily and cheaply procured in great quantities. The Society are in possession of two volumes containing a great variety of specimens of paper made from raw vegetable substances, viz.—nettles, potatoe-hawlm, poplar, hop-bines, &c. which volumes may be inspected by any person on application to the house-keeper.

Certificates of the making such paper, and one ream of the paper, to be produced on or before the last Tuesday in January, 1804.

154. **TRANSPARENT PAPER.** To the person who shall discover to the Society a method of making paper from the pulp that shall be perfectly transparent, and of a substance and body equal to fools-cap, that shall take and bear common writing ink with the same facility and correctness as writing paper generally in use; the silver medal, or twenty guineas. *Certificates* of the making such paper, an *account* of the process, and one ream of the paper, to be produced on or before the second Tuesday in January, 1804.

155. **CHINTZ PATTERNS FOR CALICO-PRINTERS.** For the best original pattern in a new taste, of light or dark ground chintz for garment-work, fit for the purposes of calico-printers, by persons of either sex; the gold medal. To be produced to the Society on or before the second Tuesday in January, 1804; the pattern to which the premium is adjudged to remain the property of the Society.

156. For the next in merit; the silver medal, on similar conditions.

157. **COPPER-PLATE PATTERNS FOR CALICO-PRINTERS.** For the best pattern, in a new stile, fit for the purposes of calico-printers for garment work; the silver medal. To be produced to the Society on or before the second Tuesday in January, 1804. The pattern to which the premium is adjudged to remain the property of the Society.

PREMIUMS IN MECHANICS.

158. **GUNPOWDER-MILLS.** To the person who, in the year 1803, shall invent and bring to perfection the most effectual method of so conducting the works of gunpowder-mills, in the business of making gunpowder, as to prevent explosion; the gold medal, or one hundred guineas. *Certificates* and *accounts* of the method having been put in practice in one or more gunpowder-mills in this kingdom, and that it promises, in the opinion of the best judges concerned in such works, to answer the purpose intended, to be produced to the Society on or before the first Tuesday in Feb. 1804.

N. B. As an encouragement to persons to turn their thoughts to improvements of this na-

ture, if any should be made on the present method of conducting the business of gunpowder making, which fall short of the total prevention of explosion, and they are sent to the Society for the sake of humanity, the papers so sent in will receive due consideration, and such bounty or reward will be bestowed thereon as they appear to merit.

159. **TRANSIT-INSTRUMENT.** To the person who shall invent and produce to the Society a cheap and portable transit-instrument, which may easily be converted into a zenith-sector, capable of being accurately and expeditiously adjusted for the purpose of finding the latitudes and longitudes of places, and superior to any portable transit-instrument now in use; the gold medal, or forty guineas. To be produced on or before the last Tuesday in Jan. 1804.

160. **TAKING WHALES BY THE GUN-HARPOON.** To the person who, in the year 1803, shall strike the greatest number of whales, not fewer than three, with the gun-harpoon; ten guineas. Proper *certificates* of the striking such whales, and that they were actually taken in the year 1803, signed by the master, or by the mate when the claim is made by the master, to be produced to the Society on or before the last Tuesday in December, 1803.

161. **FAMILY MILL.** To the person who shall invent and produce to the Society the best constructed mill for grinding corn for the use of private families, or parish-poor; the construction to be such as to render the working of the mill easy and expeditious, and superior to any hitherto in use; the gold medal, or thirty guineas. The mill, and *certificates* of its having been used to good effect, to be produced to the Society on or before the first Tuesday in February, 1804.

N. B. Cheapness and simplicity will be considered as essential parts of its merit; and the mill, or the model, to remain with the Society.

162. **MACHINE FOR RAISING COALS, ORE, &c. &c.** To the person who shall invent a machine for raising coals, ore, &c. from mines, superior to any hitherto known or in use, and which shall produce the effect at a less expense than those already known or in use; the gold medal, or fifty guineas. A model of the machine, made on a scale of not less than one inch to a foot, with a *certificate* that a machine at large on the same construction has been advantageously used, to be produced to the Society on or before the second Tuesday in February, 1804.

163. **MACHINE FOR RAISING WATER.** To the person who shall invent a machine on a better, cheaper, and more simple construction than any hitherto known or in use, for raising water out of wells, &c. from a depth of not less than fifty feet; the gold medal, or forty guineas. *Certificates* of the performance of the machine, and a model of it, on a scale of not less than one inch to a foot, to be produced to the Society on or before the first Tuesday in Feb. 1804.

164. **MACHINE FOR MAKING BRICKS.** To the person who shall invent the best and cheap-

est machine for making bricks, superior to any hitherto known or in use, whereby the labour and expense of making bricks in the usual mode, by hand, may be greatly diminished; the gold medal or forty guineas. A model, with *certificates* that a machine at large, on the same construction, has been used to good effect for the purpose of making bricks, and that at least one hundred thousand statute-bricks have been made therewith, to be produced to the Society on or before the first Tuesday in March, 1804.

165. BORING AND BLASTING ROCKS. To the person who shall discover to the Society a more simple, cheap, and expeditious method than any hitherto known or in use of boring and blasting rocks in mines, shafts, wells, &c.; the gold medal, or thirty guineas. *Certificates* of the method having been practised with success, with a full description thereof, to be delivered to the Society on or before the first Tuesday in January, 1804.

166. HEATING ROOMS FOR THE PURPOSES OF MANUFACTURERS. To the person who shall invent and discover to the Society a method of heating rooms, superior to any hitherto known or in use, and at a moderate expense, for the purposes of painters, jappanners, and other manufacturers, so as to avoid the necessity of iron or copper tunnels going through the rooms to convey the smoke, whereby the danger from such tunnels may be prevented; the gold medal, or forty guineas. A model, or complete drawing and description of the method, with *certificates* that it has been successfully practised, to be delivered to the Society on or before the last Tuesday in March, 1804.

167. IMPROVED VENTILATION. To the person who shall invent and produce to the Society a mode of permanently ventilating the apartments in hospitals, workhouses, and other crowded places, superior to any now known or used; the gold medal, or fifty guineas. A model of the apparatus, and a full account of the means by which the effect has been produced, with proper *certificates*, to be delivered to the Society on or before the last Tuesday in February, 1804.

168. PREVENTING ACCIDENTS FROM HORSES FALLING WITH TWO-WHEELED CARRIAGES. To the person who shall invent and produce to the Society a method superior to any hitherto known or in use, to prevent accidents from the falling of horses with two-wheel carriages, especially on steep declivities; the silver medal, or fifteen guineas. A model of the apparatus, and a full account of the means by which the effect has been produced, with proper *certificates* that the same has been used with success, to be delivered to the Society on or before the second Tuesday in Jan. 1804.

169. CLEARING THE TURNPIKE AND OTHER ROADS FROM MUD, AND DUST. To the person who shall discover to the Society the most effectual and the cheapest method, verified by experiments, of clearing the turnpike and other roads of great resort, from mud, and dust, or most effectually preventing the accumulation of either; the gold medal, or fifty guineas.

169*. For the second best account; the silver medal, or twenty guineas. It is required that an accurate *account* of the method used, and every expense attending it, together with satisfactory *certificates* of its being effectual, be delivered to the Society on or before the first Tuesday in March, 1804.

170. CLEANSING CHIMNIES. To the person who shall invent and produce to the Society the most effectual mechanical or other means for cleansing chimnies from soot, and obviating the necessity of children being employed within the flues; the gold medal.

171. For the next in merit; the silver medal. The mechanical, or other means, with *certificates* of their having been used with proper effect, to be produced to the Society on or before the first Tuesday in Jan. 1804.

172. CHIMNIES CLEANSSED. To the person who shall, during the year 1803, cleanse, or cause to be cleansed, the greatest number of chimnies, at least two stories high, not fewer than three hundred, by any mechanical or other process which does not require the employment of boys within the flues; the gold medal. *Certificates*, signed by not less than two thirds of those housekeepers on whose premises the said means have been employed, and an account of the process, to be produced to the Society on or before the first Tuesday in February, 1804.

173. To the person who shall cleanse, or cause to be cleansed, the next greatest number of chimnies, not fewer than one hundred and fifty, upon similar conditions to the above; the silver medal.

174. RAISING THE BODIES OF PERSONS WHO HAVE SUNK UNDER WATER. To the person who shall invent and produce to the Society a cheap and portable drag, or other machine, superior to those now in use, for the purpose of taking up in the best and most expeditious manner, and with the least injury, the bodies of persons who have sunk under water; the gold medal, or thirty guineas. The drag, or machine to answer the purpose intended, to be produced to the Society, on or before the first Tuesday in March, 1804.

PREMIUMS OFFERED FOR THE ADVANTAGE OF THE COMMERCE OF THE UNITED EMPIRE.

175. TAKING PORPOISES. To the people in any boat or vessel, who, in the year 1803, shall take the greatest number of porpoises on the coast of Great Britain or Ireland, by gun, harpoon, or any other method, not fewer than thirty, for the purpose of extracting oil from them; the gold medal, or thirty pounds. *Certificates* of the number, signed by the persons to whom they have been sold or delivered for the purpose of extracting the oil, to be produced to the Society on or before the last Tuesday in January, 1804.

176. OIL FROM PORPOISES. To the person who shall manufacture the greatest quantity of oil from porpoises taken on the coast of Great

Britain or Ireland, in the year 1803, not less than twenty tons; the gold medal, or thirty pounds. *Certificates* of the oil having been made from porpoises actually caught on the coast of Great Britain or Ireland, and two gallons of the oil as a sample, to be produced to the Society on or before the last Tuesday in February, 1804.

177. **CURING HERRINGS BY THE DUTCH METHOD.** To the person or persons who shall, before January 1804, cure the greatest quantity of white herrings, not less than thirty barrels, according to the method practised by the Dutch, and equal in all respects to the best Dutch herrings, the same being caught in the British or Irish seas, and cured in a British or Irish vessel or port; the gold medal, or fifty guineas.

178. For the next greatest quantity, not less than fifteen barrels; the silver medal, or twenty guineas. A sixteen-gallon barrel of the herrings to be produced to the Society on or before the first Tuesday in February, 1804, with *certificates* that the conditions of the premium have been completely fulfilled, and that the whole were cured in the same manner as the specimen, together with a full description of the process employed, in order that the Society may judge how far the Dutch method has been adopted.

PREMIUMS OFFERED FOR THE ADVANTAGE OF THE BRITISH COLONIES.

179. **NUTMEGS.** For the greatest quantity of merchantable nutmegs, not less than ten pounds weight, being the growth of his Majesty's dominions in the West Indies, or any of the British settlements on the coast of Africa, or the several islands adjacent thereto, and equal to those imported from the islands of the East Indies; the gold medal, or one hundred guineas. Satisfactory *certificates*, from the governor, or commander in chief, of the place of growth, with an account of the number of trees, their age, nearly the quantity of fruit on each tree, and the manner of culture, to be produced on or before the first Tuesday in December, 1803.

180. The same premium is extended one year further. *Certificates* to be produced on or before the first Tuesday in December, 1804.

181. **CLOVES.** For importing into Great Britain or Ireland, in the year 1803, the greatest quantity of cloves, not less than twenty pounds weight, being of the growth of some of the islands of the West Indies subject to the British empire, or any of the British settlements on the coast of Africa, or the several islands adjacent thereto, and equal in goodness to the cloves brought from the East Indies; the gold medal, or fifty guineas. Samples, not less than two pounds weight, with *certificates* that the whole quantity is equal in goodness, together with satisfactory *certificates* signed by the governor, or commander in chief, of the place of growth, with an account of the number of trees growing on the spot, their age, and the manner of culture, to be produced to the Society on or before the first Tuesday in January, 1804.

182. The same premium is extended one year further. *Certificates* to be produced on or before the first Tuesday in January, 1805.

183. **KALI FOR BARILLA.** To the person who shall have cultivated, in the Bahama Islands, or any other part of his Majesty's dominions in the West Indies, or any of the British settlements on the coast of Africa, or the several islands adjacent thereto, in the year 1803, the greatest quantity of land, not less than two acres, with Spanish kali, fit for the purpose of making barilla; the gold medal, or thirty guineas.

184. For the next greatest quantity, not less than one acre, the silver medal, or fifteen guineas. *Certificates*, signed by the governor, or commander in chief, for the time being, of the quantity of land so cultivated, and of the state of the plants, at the time of signing such *certificates*, to be delivered to the Society, with samples of the kali, on or before the second Tuesday in January, 1804.

185, 186. The same premiums are extended one year further. *Certificates* to be produced on or before the second Tuesday in Jan. 1805.

187. **DESTROYING THE INSECT COMMONLY CALLED THE BORER.** To the person who shall discover to the Society an effectual method of destroying the insect commonly called the borer, which has, of late years, been so destructive to the sugar-canes in the West India islands, the British settlements on the coast of Africa, and the several islands adjacent thereto; the gold medal, or fifty guineas. The discovery to be ascertained by satisfactory *certificates* under the hand and seal of the governor or commander-in-chief, for the time being, and of some other respectable persons, inhabitants of the islands, or other place, in which the remedy has been successfully applied; such *certificates* to be delivered to the Society on or before the first Tuesday in January, 1804.

188. **CULTIVATION OF HEMP IN UPPER AND LOWER CANADA.** To the person who shall sow with hemp the greatest quantity of land in the province of Upper Canada, not less than six arpents (each four-fifths of a statute acre, in the year 1803, and shall at the proper season cause to be plucked the summer hemp (or male hemp bearing no seed) and continue the winter hemp (or female hemp bearing seed) on the ground until the seed is ripe; the gold medal, or one hundred dollars.

189. To the person who shall sow with hemp the next greatest quantity of land in the same province of Upper Canada, not less than five arpents, in the year 1803, in the manner above-mentioned; the silver medal, or eighty dollars.

190. For the next greatest quantity of land, in the same province, and in a similar manner, not less than four arpents; sixty dollars.

191. For the next greatest quantity of land, in the same province, and in a similar manner, not less than three arpents; forty dollars.

192. For the next greatest quantity of land, in the same province, and in a similar manner, not less than one arpent; twenty dollars. *Certificates* of the number of arpents, the method

of culture, of the plucking of the hemp, with a general account whether sown broad-cast or in drills, the expense, soil, cultivation, and produce to be transmitted to the Society, certified under the hand and seal of the governor or lieutenant-governor, together with 28lb. of the hemp, and two quarts of the seed, on or before the last Tuesday in November, 1804.

193, 194, 195, 196, 197. The same premiums are extended one year farther. *Certificates*, &c. as before-mentioned, to be transmitted to the Society, on or before the last Tuesday in November, 1805.

198 to 208. Premiums exactly similar in all respects to those held out for the province of Upper Canada, are also offered for the province of Lower Canada, and are extended to the same period.

209. IMPORTATION OF HEMP-FROM CANADA. To the master of that vessel, which shall bring to this country the greatest quantity of marketable hemp, not less than one hundred tons, in the year 1803, the produce of Upper or Lower Canada; the gold medal.

210. To the master of that vessel which shall bring the next quantity, not less than fifty tons; the silver medal. *Certificates* satisfactory to the Society to be produced by the master of the vessel on or before the first Tuesday in February, 1804, to testify that such hemp was grown and prepared in Canada.

211, 212. The same premiums are extended one year farther. *Certificates* to be produced on or before the first Tuesday in February, 1805.

PREMIUMS OFFERED FOR THE ADVANTAGE OF THE BRITISH SETTLEMENTS IN THE EAST INDIES.

213. BHAUGULPORE-COTTON. To the person who shall import into the port of London, in the year 1803, the greatest quantity, not less

than one ton, of the Bhaugulpore-cotton, from which clothes are made in imitation of nankeen, without dying; the gold medal. A quantity of the cotton, not less than five pounds weight in the pod, and five pounds carded, to be produced to the Society, with proper *certificates*, signed by the secretary to the board of trade of Bengal or Bombay, on or before the last Tuesday in February, 1804.

214. The same premium is extended one year farther. *Certificates* to be produced on or before the last Tuesday in February, 1805.

215. ANNATTO. To the person who, in the year 1803, shall import into the port of London, from any part of the British settlements in the East Indies, the greatest quantity of annatto, not less than five hundred weight; the gold medal. A quantity of the annatto, not less than ten pounds weight, to be produced to the Society, with proper *certificates*, signed by the secretary of the board of trade of the respective settlement, that the annatto is the produce of such settlement, on or before the last Tuesday in February, 1804.

216. The same premium is extended one year farther. *Certificates* to be produced on or before the last Tuesday in February, 1805.

217. TRUE COCHINEAL. To the person who, in the year 1803, shall import into the port of London, from any part of the British settlements in the East Indies, the greatest quantity of true cochineal, not less than five hundred weight; the gold medal. A quantity of the cochineal not less than ten pounds weight, with proper *certificates*, signed by the secretary of the board of trade of the respective settlement, that the cochineal is the produce of such settlement, to be produced to the Society on or before the first Tuesday in Feb. 1804.

218. The same premium is extended one year farther. *Certificates* to be produced on or before the first Tuesday in February, 1805.

CONDITIONS FOR THE POLITE ARTS.

No person who has gained the first premium in any class shall be admitted a candidate in a class of an inferior age; and no candidate shall receive more than one premium in one year; nor shall they, who for two successive years have gained the first premium in one class, be again admitted as candidates in that class.

No person shall be admitted a candidate in any class, who has three times obtained the first premium in that class.

No more than one performance in any class shall be received from the same candidate.

All performances (to which premiums or bounties are adjudged) shall remain with the Society till after the public distribution of rewards in May, when they will be re-delivered unless mentioned in the premiums to the contrary.

No performance shall be admitted, that has obtained a premium, reward, or gratification, from any other society, academy, or school, or been offered for that purpose.

All performances that obtain premiums in the Polite Arts must have been begun after the publication of such premiums, except line engravings.

To encourage real merit, and prevent attempts to impose on the Society, by producing drawings made or retouched by any other person than the candidate, the Society require a specimen of the abilities of each successful candidate, under the inspection of the Committee of Polite Arts, in every instance where such proof may appear necessary.

All candidates in the Polite Arts are required to signify, on their drawings, their age; and whether the performances are originals or copies; and if copies, whence they were taken.

SOCIETY'S OFFICE, ADELPHI, JUNE 1st, 1802.

ORDERED;

That the several Candidates and Claimants to whom the Society shall adjudge Premiums or Bounties, do attend at the Society's Office in the Adelphi, on the last Tuesday in May 1803, at Twelve o'Clock at Noon precisely, to receive the same; that Day being appointed by the Society for the Distribution of their Rewards: And before that Time no Premium or Bounty will be delivered, excepting to those who are about to leave the Kingdom.

In Cases where the Society may think fit to admit Excuses for not attending in Person, Deputies may be substituted to receive the Rewards, provided such Deputies are either Members of the Society, or the superior officers thereof.

GENERAL CONDITIONS.

As the great object of the Society in rewarding individuals is to draw forth and give currency to those inventions and improvements, which are likely to benefit the public at large, candidates are requested to observe, that if the means, by which the respective objects are effected, do require an expense or trouble too great for general purposes, the Society will not consider itself as bound to give the offered reward; but, though it thus reserves the power of giving in all cases such part only of any premium as the performance shall be adjudged to deserve, or of withholding the whole if there be no merit, yet the candidates may be assured the Society will always judge liberally of their several claims.

It is required that the matters for which premiums are offered, be delivered in without names or any intimation to whom they belong; that each particular thing be marked in what manner each claimant thinks fit, such claimant sending with it a paper sealed up, having on the outside a corresponding mark, and, on the inside, the claimant's name and address; and all candidates are to take notice, that no claim for a premium will be attended to, unless the conditions of the advertisement are fully complied with.

No papers shall be opened, but such as shall gain premiums, unless where it appears to the Society absolutely necessary for the determination of the claim; all the rest shall be returned unopened with the matters to which they belong, if inquired after by the mark, within two years.

All models of machines, which obtain premiums or bounties, shall be the property of the Society; and, where a premium or bounty is given for any machine, a perfect model thereof shall be given to the Society.

All the premiums of this Society are designed for Great Britain and Ireland, unless expressly mentioned to the contrary.

The claims shall be determined as soon as possible after the delivery of the specimens.

It is expected that all articles for claims or bounties be sent to the Society carriage paid.

No person shall receive any premium, bounty, or encouragement, from the Society, for any matter for which he has obtained, or purposes to obtain, a patent.

A candidate for a premium, or a person applying for a bounty, being detected in any disingenuous method to impose on the Society, shall forfeit such bounty, and be deemed incapable of obtaining any for the future.

No member of this Society shall be a candidate for, or entitled to receive, any premium, bounty, or reward, whatsoever, except the honorary medal of the Society. The candidates are, in all cases, expected to furnish a particular account of the subject of their claims; and, where certificates are required to be produced in claim of premiums, they should be expressed, as nearly as possible, in the words of the respective advertisements, and be signed by persons who have a positive knowledge of the facts stated.

Where premiums or bounties are obtained in consequence of specimens produced, the Society mean to retain such part of those specimens as they may judge necessary, making a reasonable allowance for the same.

No candidates shall be present at any meetings of the Society or committees, or admitted at the Society's rooms, after they have delivered in their claims, until such claims are adjudged, unless summoned by the committee.

N. B. The Society farther invite the communications of scientific and practical men upon any of the subjects for which premiums are offered, although their experiments may have been conducted upon a smaller scale than the terms of each require, as they may afford ground for more extensive application, and thus materially forward the views of the Society and contribute to the advantage of the public. Such communications to be made by letter, addressed to the Society, and directed to Mr. CHARLES TAYLOR, the Secretary, at the Society's Office, in the Adelphi, London.

The models required by the Society should be upon the scale of one inch to a foot. The Winchester bushel is the measure referred to for grain; and, as the acres of different districts vary in extent, it is necessary to observe, that the Society mean Statute Acres, of five and a half yards to the rod or pole, when acres are mentioned in their list of premiums; and they request that all communications to them may be made agreeably thereto.

The Society desire that the Papers on different subjects sent to them may be full, clear, explicit, fit for publication, and rather in the form of Essays than of Letters.

Presents to the Society of Books for their Library will be thankfully received.

*+ To persons inclined to leave a sum of money to this Society by will, the following form is off red for that purpose.

Item. I give and bequeath to A. B. and C. D. the sum of
upon condition and to the intent that they, or one of them, do pay the same to the collector for the time being, of a society in London, who now call themselves the Society for the Encouragement of Arts, Manufactures, and Commerce; which said sum of
I will and desire may be paid out of my personal estate, and applied towards the carrying on the laudable designs of the Society.

By Order of the Society,

CHARLES TAYLOR, *Secretary.*

HISTORY.

National Transactions.

GREAT BRITAIN.

THE most active preparations continue to be made for prosecuting with vigor a war into which we have been forced. Holland, whole neutrality our Government was inclined to respect, is now too in the number of Enemies. On the 16th inst. Letters of Marque and Reprisal against the Batavian Republic were signed at a Council held at Windsor, and the following day the Ambassador from that country left London on his return to the Hague.

Our cruisers have been very successful in annoying the Enemy's Trade.—The number of Prizes is so considerable, that into the port of Plymouth alone, 105 French and Batavian Vessels were sent in the space of three weeks.

The preparations for offensive as well as defensive war are prosecuting with increased activity. The Military Force of the country will be greatly augmented, and every precautionary measure will be employed to render any attempt at Invasion abortive. The Country is unanimous in support of the measures of Government, and the additional burthens that must necessarily be imposed are cheerfully borne, from the conviction that nothing less than our annihilation, can pacify our implacable and perfidious enemy.

Of the proceedings of Parliament, the part most interesting to the Public must be the Budget, of which we shall endeavour to present a concise account.

The principle on which the Chancellor of the Exchequer proceeds, with respect to the financial conduct of the War, is that of borrowing no more in any future year than the produce of the Sinking Fund (now 6,000,000l.) will discharge, and raising the remainder by taxes, together with the ordinary supplies, within the year, in order that no addition may be made to the national debt.

The taxes are distributed amongst three great branches of revenue, namely, the Customs, Excise, and Income, arising from Land, Personal Property, Trade, Professions, &c.

In the first branch specific duties are imposed upon the importation of Sugar and the exportation of Cotton, a general duty of 12½ per cent. upon the present duties upon all articles of Import, except Cotton-wool, Tea and Wine; a duty of one per cent. upon all articles exported from this country to different parts of Europe, and three per cent. on articles exported to other quarters of the world. The whole produce of these Duties, together with an additional Tonnage Duty, was estimated by the Minister at 2,000,000l after deducting drawbacks,

With respect to the Excise, heavy duties are imposed upon Tea, Wine, foreign and home made Spirits, and Malt; the whole produce of which the Minister estimated at 6,000,000*l*.

On Land, a Tax of one shilling in the pound on the net rent is imposed upon the proprietor, and nine-pence in the pound on the tenant, in England, and six-pence in Scotland. The produce of this, together with a similar tax (of five per cent.) on the Dividends received from the Funds, and the Income arising from other personal property, and a like Tax on Salaries, &c. and on Trade, with some modifications as to the latter, was estimated by the Minister at 4,500,000*l*.

This sum, added to 2,000,000*l*. the estimated produce of the additional Duties of Customs, and 6,000,000*l*. from the Excise, makes a total of 12,500,000*l*. to be raised within the year.

The Taxes are divided into War Taxes, and permanent Taxes. Of the former the following is a correct schedule, as they are at present before the House.

4 <i>s</i> . per hundred on Sugar imported	- - -	}	1,300,000
12½ on all other imports	- - -		
1 per cent. <i>ad valorem</i> upon Exports to Europe	- - -	}	460,000
3 per cent. on ditto, elsewhere	- - -		
1 penny per lb. on Cotton Wool	- - -	-	250,000
Tonnage Duty	- - -	-	150,000
45 per cent. <i>ad valorem</i> , coarse, and	- - -	}	1,300,000
60 per cent. on fine Teas	- - -		
1 <i>ol</i> . per pipe on Wine	- - -	-	500,000
An increase of half the present duty on Foreign and Home made Spirits	- - -	-	1,500,000
Two Shillings per Bushel on Malt	- - -	-	2,700,000
Half Income-Tax	- - -	-	4,500,000

The permanent Taxes are

Consolidated Customs	-	250,000
Consolidated Assessed Taxes	-	220,000
Increase of Tax on Receipts	-	220,000

GERMANY. The King's Continental Dominions have fallen a sacrifice to French rapacity; in their seizure of the Electorate of Hanover they experienced not the slightest opposition from the powers whose duty it was to make the neutrality of that country respected. Hamburg is expected to share the same fate. On the 6th inst. a Body of 3000 French Troops were on their march for Cuxhaven, and another corps of 10000 were directing their march to Stade. All the British Ships at Hamburg: hastened away from that port, many of them with only half their cargoes in consequence of an order to that effect posted at the Exchange by the British Consul.

FRANCE. Bonaparte continues to receive, from all quarters, assurances of the most zealous support in the prosecution of the war against this country. The addresses are couched in the usual style of adulation to his Consular Majesty, and bitter and acrimonious invective against this country. Offers have been made by several of the principal towns to build ships of war, to be presented, free of expense, to the Government. Subscriptions are opened in Paris and generally through the department of the Seine, for building gun-boats and transports. In a word, no pains are spared to rouse the spirit of the people in support of the War, which we are convinced will obtain a degree of unaccountable popularity for a certain period. This popularity will, however, gradually decline, if on the part of this country the contest is maintained with suitable energy and spirit. The annihilation of their Commerce will soon be a matter of distressing experience to the Mercantile part of France; and the great mass of the people, compelled to undergo great sacrifices, in

support of a contest pregnant only with disaster, will begin to look without prejudice or passion, at a War, for the prosecution of which France possesses not one legitimate object, and which is protracted only for the purpose of gratifying the ambition, obstinacy, and pride of the first Consul.

The first Consul has issued a decree, ordering that all the English who are now in France, from the age of 18 to 60, (excepting females) shall be made Prisoners of War, to answer for such Citizens of the French Republic as shall have been detained and made Prisoners by the Vessels and Subjects of His Britannic Majesty, previous to any Declaration of War. In consequence of the above decree, Mr. Talbot, and all the English in France, were immediately made Prisoners. Not fewer than 100 persons have been confined at Calais; among whom are Sir James Crawford, Mr. Cobourn, and Lord Yarmouth. The Crew of the Prince of Wales and Nancy Packets have also been detained at Calais, and made prisoners. All the English who were at Paris at the Time the decree was passed were immediately ordered off to Foshainbleau Prison. The same violent measures have been adopted in Holland. The reason for the above proceedings is, that the English had committed Hostilities without a previous Declaration of War; and the English, both in France and Holland, are to be considered as Prisoners till the Ships and Citizens of the two Republics, taken previous to a Declaration of War, are liberated. The conduct of the French Government in this instance, is wholly unjustified by the Laws of Nations. The formality of a Declaration of War is become obsolete, precisely for the reason, that it is no longer necessary. The recal of Ambassadors is a sufficient Declaration of War, and proves that two countries are from that moment to be considered as in a state of War. In future, Foreigners will be unwilling to visit France; for they will have no guarantee, that the customs and usages of civilized nations will be extended to them, or that their persons will be respected. The arbitrary power of the First Magistrate may, in a moment, consign them to perish in the dark recesses of the Temple, or to rot in the damp dungeons of the Conciergerie.

DENMARK. The Danish Troops are forming a Cordon along the German Frontiers to protect the neutrality of that state. Should the French however determine to proceed, their resistance would be unavailing. It is confidently said, that France has determined to extend her system of annoyance against our Trade beyond Hamburgh and that a considerable body of troops now in Hanover is to be marched into Denmark for the purpose of securing the Sound.

HOLLAND. This unfortunate Country, to which France has denied the benefits of a neutrality she ardently desired, is now compelled to take a part against Great Britain. While preparations are making to fit out all the Ships of War in the Ports of the Republic, the inhabitants in most of the Cities are employed in signing an Address to the Government, in which they describe in the liveliest colours the calamities and disasters with which a new War will be attended after a Peace of such short duration. They represent that it would have been better that the state of War had continued as the last means which remained to the Nation have been collected and employed to revive the Country as far as possible.

RUSSIA. Great preparations are making in the Russian Ports of the Baltic, which would seem to announce the early appearance of a numerous Fleet.—At Petersburg, as well as Cronstadt, the greatest activity is employed in equipping all the Ships of the line, frigates, galleys, and gun-boats that are now in those ports. At Revel fifteen Russian Ships are ready for Sea.—In case of necessity, it is said that a large Body of Troops will be embarked in that Fleet. The destination of this armament is, at present, a complete mystery.

It is however surmised, to be only for the Protection of her Trade, as the difference with Sweden has been brought to an amicable termination.

TURKEY. The Turkish Government convened a grand Council, held to deliberate on the line of conduct to be adopted in the present state of affairs, at which it was resolved that the Port should observe the strictest neutrality, A Squadron of five Sail of the line, six Frigates and four Sloops of War is however fitting out for the protection of Trade.

ITALY. The King of Etruria is dead, and the Queen has been declared Regent. That her authority will not long continue is extremely probable.

The King of Naples it is said, has requested the Emperor of Russia to protect him as a neutral State, but to this application he has not yet received any answer.

ST. DOMINGO. Accounts from St. Domingo, mention, that the Blacks are very strong, and well supplied with arms and ammunition, and keep the French Troops from advancing into the Country. The French Men of War are coming Home, it is reported, singly, with part of their guns dismounted, in order to stow cargoes. Since the treacherous conduct of the French to Toussaint, the Blacks have refused all offers of settling the dispute, and are determined to perish to a Man before they will submit to the French Government; they are reported to be between 80 and 90,000 strong. French Frigates are kept continually cruising off the Cape, to intercept the supplies of arms and ammunition, which however they are constantly receiving.

Agriculture.

THE effect of the late rains has been highly beneficial throughout the whole kingdom to vegetation. The grass, which was before rather backward, has grown astonishingly within these two or three weeks. Corn has also been much assisted in its growth. In the southern counties in particular the grain was never known to look finer, Wheat in particular affords every prospect at present of producing an abundant crop.

The fruit trees in general are in a flourishing State, and the appearance of the apple and pear trees in the cyder countries is most healthy and promising.

It gives us pleasure to observe that in consequence of this prospect of abundance, notwithstanding the great extra supplies of provisions, which the emergency of the times necessarily requires, that the late market lists present a reduction in most of the articles of life.

The Duke of Bedford's Sheep Shearing.

The following are the Premiums advertised by his Grace to be given to promote the Improvement of Live Stock, &c. &c,

I. PREMIUMS FOR FAT WETHERS.

I. To the Person who shall breed and produce at Woburn Sheep-shearing, June 1803, the best Two Shear Fat Wether—the Premium of a Cup, value Ten Guineas.

II. To the Person who shall breed in Bedfordshire, and produce at Woburn Sheep-shearing, 1803, the best Two Shear Fat Wether, Five Guineas.—The same Person not to have both Premiums. The Name of the breeder, together with the place where bred, to be duly certified, and given in at the time of shearing.

The Wethers to be produced on Tuesday, between the Hours of Ten and Eleven, at Woburn-Abbey: they will be sheared, weighed alive, killed, and weighed dead, and due attention paid to the Wool, Carcass and Tallow.

II. PREMIUMS FOR THEAVES BRED IN BEDFORDSHIRE.

I. To the Person who shall breed in Bedfordshire, and produce at Woburn Sheep-shearing, 1803, the best Theave—A Cup, value Ten Guineas.

II. To the Person who shall breed in Bedfordshire, and produce at Woburn Sheep-shearing, 1803, the second best Theave—A Cup, value Five Guineas.—The same person not to have both Premiums

The Sheep to be produced at the Park-Farm on Tuesday, between the hours of ten and eleven. The Claimants to produce Certificates that their Theaves were bred in Bedfordshire, specifying the Parish, and Name of the Breeder.

III. SUNDRY PREMIUMS.

I. To the Person who shall produce at Woburn Sheep-shearing, 1803, the best Boar—Five Guineas.

II. To the best Sheep-shearer—Five Guineas.

Second best—Four ditto.

Third best—Three ditto.

Fourth best—Two ditto.

Fifth best—One ditto.

If more than Ten Candidates, to draw lots. The trial to be made on the Wednesday. Candidates to give notice on the Saturday before the clipping.

IV. PREMIUMS FOR ENCOURAGING IMPROVEMENTS IN IMPLEMENTS OF AGRICULTURE.

I. To the Person who shall produce at Woburn Sheep-shearing, 1803, the best and most useful newly-invented implement—the sum of Twenty Guineas.

As it is the intention, in giving this Premium, both to encourage and to introduce to general notice, such improvements in Implements of Agriculture, as appear of real utility; it will be left to a Committee to decide, 1st. Which Implement produced deserves the preference;—2dly. Whether any of them merit the reputation that the acquisition of a Premium might confer.

II To the Person who shall produce the Plough, which shall with the least force turn the cleanest and deepest furrow—Cup, value Ten Guineas.

The Implements to be brought to the Park-Farm on Tuesday.

V. To the Farmer in Bedfordshire, who shall produce the most satisfactory account of comparative trials between the Drill and Broadcast Culture of Wheat, Barley, or Oats, on not less than Ten Acres, being in the same Field. Thirty Guineas.

It is required that the Farmers who shall be Candidates for these Premiums, do give notice to the Duke of Bedford of their intention, that the crops may be viewed while growing, by such Persons as the Duke may appoint.

It is expected that the account should contain a description of the soil, the preparation (manure, if any,) quantities of Seed sown and drilled, hoeing, Time and Regularity of Ripening, Harvesting, and produce—verified by sufficient Certificates, to be produced at the Woburn Sheep-shearing in 1803.

N. B. It is required that the Drill Crops should be kept perfectly free from Weeds.

First Day, June 13, 1803.

The usual preparations having been made, this annual fete commenced with great splendour and success, the company assembling at a Breakfast in the Great Salloon, consisting of the first Characters as speculative, and practical Breeders of Sheep, and Cattle; amongst whom were the following Noblemen and Gentlemen: the Prince Esterhazy, an Hungarian Prince, whose Flock of Sheep on his Estate in Hungary amounts to one hundred and fifty thousand; the Duke of Manchester, Lords Winchelsea, Thanet, Albemarle, Darnley, Somerville, Talbot, Bradford, Preston, William Russell, Sir John Sinclair, and Messrs. Coke, Child, Lee, Antonio, Western, Fordyce, Byng, Anson, and Young, Elmer, Wharton, Honeyborne, Rickford, &c.

The shew commenced at eleven o'Clock with the Leicester Rams, being one shear Sheep, and as fine as ever were seen. They were produced, about 20 in number, and their Fleeces hung up in the Shew-Room, one of which was of the extraordinary weight of 10lbs. 10oz. The Leicestershire Breeders, were with great reason, very proud of their produce. It was, however evident, through the whole of the day, that although the shew of Leicester Rams was as good, perhaps better than any former year, yet they were not

in so much request. His Grace has not so large a general Stock as the late Duke; but it was estimated to be finer, in proportion to the number, and the present Duke has added a variety of animals for the Food of Man, in which was exhibited great Improvement, and particularly in the breed of Pigs.

When it is considered the late Duke raised the Weight of the South Down breed of Sheep from 18lb. to 35lb. a quarter, at the same age, and with the same food, while the Leicester and all other breeds have been stationary, we must expect a preference, where it seems to be so justly due. About 150 persons sat down with his Grace to a princely dinner. In the evening the following Sales were made, viz.

Ten Leicester Ewes 36 Guineas.—Ditto 30 ditto.
Ten Theaves 37 ditto.—Ditto 40 ditto.

Tuesday, June 14.

The Morning occupation was the view of the South Down Rams, and the Examination of the Prize Sheep. About 24 Prize Rams of that breed were produced. After this Shew the Company adjourned to the view of some Farming Experiments. The Day proving beautiful, a larger Company than yesterday dined in the Abbey, in the same Form as before. After Dinner a Prize Ploughing-match, between Mr. Coke, of Norfolk, and Mr. Wakefield, of Bunham, was adjudged to Mr. Coke. Sir John Sinclair took up the Competitor in favour of a Scotch Plough, to be decided next Woburn Meeting. Adjourned to the Farm for the Lottery of Leicester Rams, the Prizes from 80 Guineas to 30. Mr. Wing was the lucky Candidate for the 80 Guinea Ram.

Wednesday, June 15.

The Morning proving unfavourable Weather, the Ploughing Match between the Norfolk and Rotherham Ploughs was deferred, as well as the Shew of New Implements of Husbandry; and the morning was in consequence passed in the Sale of South Down Ewes, which went off at the Rate of 3l. each; and the Theaves fetched on an average Six Guineas; the Prize Wethers killed were viewed, those selected for Judgment, were one belonging to Mr. Cowley, one to Mr. Bithry, and one to Mr. Earl, the decision to be made by the judges to-morrow. The company adjourned to dinner with rather an increase of numbers.

After dinner the occupation was the Letting of South Down Rams, which went off briskly—four at the price of 40 guineas. Lord Bradford was the successful Candidate for one favourite; for another there were fourteen Candidates. This was followed by a Sale of South Down Ewes, some lots of which bore a better price than in the morning.

Thursday, June 16.

The morning began with the Sale of Hereford and Devon Cattle, and a second Show of Leicester Rams. An adjournment was then made to Crawley Farm, to inspect a Ploughing Match. The following started:

	Power Cwt.	Each Depth inches	Furrow Breadth inches
Mr. Cowley's Double-furrowed Plough, Three Horses	5	5½	9½
Mr. Wilson's Northumberland Plough, Two Horses	2½	4½	10
The Duke's Norfolk Plough, Two Horses	3	6½	11
Dr. Macguire's Bedfordshire Ploughs, Two Horses	2½	5½	10
Mr. Barlow's Bedfordshire Plough, Two Horses	2½	5½	10½
Mr. French's Norfolk Plough, Two Horses	3½	5½	13½
Mr. Salmon's New Plough, One Horse	1½	4½	10
N. B. The Power of Draught was measured by a Spring Machine, in cwt. ½ ½ ½.			

Mr. Wing and Mr. Buckley appointed Judges.

Returned to the Farm to view the Implements of Husbandry, of which the newest seemed to be a Thrashing Machine by means of beaters, those hitherto invented being by squeezing. Mr. Lester also produced a new Thrashing Machine, which operates by passing the straw over a large cylinder with holes in it.

The Company at Dinner were not quite so numerous. After Dinner the Prizes were declared:

For the best Wether, to Mr. Earl, of Dallington, the Cup, value Twenty Guineas.

Next best Wether, to Mr. Bithry, of Bedfordshire, the Cup, value Five Guineas.

For the best Theave, to Mr. J. Purfen, Ten Guineas.

For the next best, to Mr. J. Sucket, Five Guineas.

For the best Boar, to Mr. Western, of Felix Hall, Essex, Five Guineas.

The best Sheep-shearer, John Mason, Five Guineas.

Second best, Jos. Barnold.

Third best, Jos. Huntley.

His Grace gave, "Prosperity to all Improvements in Agriculture."

The Prize in Ploughing was decided in favour of the Duke's Norfolk Plough, worked by the Bailiff of Crawley Farm.

The Prizes for next year were proposed, which do not differ essentially from the above. The Duke then drank to "Our next Meeting."

Mr. Coke proposed His Grace's Health, with three times three, which was received with loud approbation.

The adjournment was then to the Farm, for the Letting of Leicester Rams, and concluded with the Sale of Devonshire and Herefordshire Heifers, and young Bulls.—The beauty of the day, and the Ploughing Match, at a little distance, gave the Park the appearance of a Fair.

Mr. Salmon's Plough, although as yet imperfect, bids fair, in principle, to be of much advantage, being calculated to destroy all friction except that which is produced by cutting the earth.

Cornwall Agricultural Society.

At the Annual Exhibition of this Society held on Tuesday the 7th day of June, 1803, at the Shire Hall, in the Borough of Bodmin,

FRANCIS GLANVILLE, Esq. V. P. in the Chair;

A capital live stock was produced, and the Premiums adjudged as follows:

	£.	s.	d.
To Mr. John Rogers, of Halwood, for the best bull	10	10	0
Philip Rashleigh, Esq. for the second best ditto	5	5	0
Mr. Thomas Key, of St. Breock, for the best, not exceeding two years old	5	5	0
Mr. John Slyman, of St. Mabyn, for the second best ditto	3	3	0
Nicholas Stevens, of Bodmin, for the best stallion, not deserving the full premium, but the inspectors recommended	7	7	0
J. P. Peters, Esq. for the best ram, free for all England	10	10	0
Mr. James Drew, of Probus, for the second best ditto	5	5	0
J. P. Peters, Esq. for the best ram, yeaned in Cornwall	5	5	0
Mr. Michael Mill, of St. Columb, for the second best ditto	3	3	0
Rev. Robert Walker, for the best hog ram	5	5	0
W. R. Gilbert, Esq. for the ten best store ewes	5	5	0
J. P. Peters, Esq. for the second best ditto	2	2	0
Mr. Thomas Dungey, of St. Ewe, for the best boar	3	3	0
Mr. Thomas Trood, of Poughill, for the best fat sheep slaughtered	1	1	0
J. P. Peters, Esq. for the second best ditto	2	2	0
Ditto, for the best ditto, under two years old	3	3	0

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To Ditto, for the best fleece of wool from a ram	2	2	0
Ditto, for the best ditto from a Ewe	2	2	0
Daniel Farley, of —, Devon, the sheep shearer	3	3	0
James Bridle, of Dock, second best ditto	2	2	0
Thomas Marshall, of Mewagiffey, third best ditto	1	1	0
William Greenilade, of Newlyn, fourth best ditto	0	10	0
Edward Harvey, of Launceston, for the best cart	5	5	0

South Hants Agricultural Society.

Premiums offered by the Society, to be determined at the Anniversary Meeting at Southwick, on Tuesday the 28th day of June.

CLASS I.

Three Guineas to the ploughman who does the most work, and in the best manner, in three hours, with two horses, and without a driver.

Two Guineas to the next best ploughman, in the same manner.

N. B. No person will be allowed to be a candidate for the above premiums, unless he produce a certificate of having ploughed 30 acres, in the same way, on his master's farm, since the last Anniversary meeting at Southwick.

Three Guineas to the ploughman who shall, in three hours, with oxen, plough the greatest quantity of land, and in the best manner, in proportion to the force employed.

Two Guineas to the next best ploughman, in the same manner. Half-a-guinea to each of the drivers.

Candidates for the above premiums to be at Southwick, on Tuesday the 28th of June, at nine o'clock in the morning, in order to make proper trials before a Committee of this Society.

Three guineas to the ploughman who, in a husbandry-like manner, has ploughed the greatest number of acres (not less than 40) on his master's farm, with any number of oxen, they being used also in the general business of the farm, between the 29th of September last and the end of the season for sowing the Lent corn.

Two Guineas to the ploughman that ploughs the next greatest number of acres (not less than 30) in the same manner.

Candidates for the two last premiums must send certificates from their masters as to the number of acres ploughed, to the Secretary, on or before the 25th of June.

CLASS II.

Three Guineas to the person who shall produce the best boar.

Three Guineas to the owner of the best two year old bull. The bull to have been his property three months previous to the 21st of June; and he must engage to keep the bull for three months longer.

Two Guineas to the person who shall produce the best Leicester ram.

Two Guineas to the person who shall produce the best South Down ram.

The rams to have been the property of the respective owners from the 1st of January last, and if not shorn when produced, the Committee are to be at liberty of having them shorn.

Three Guineas to the person who shall produce the best cow, three years old, and bred in Hampshire, and to have been the property of the owner from the 1st of January last.

Two Guineas to the person who shall produce the best heifer, two year's old, and bred in Hampshire, and to have been the property of the owner from the first of January last.

Cattle produced for these premiums must be at the Golden Lion Inn, Southwick, before one o'clock, on the 28th of June.

CLASS III.

Two Guineas to the labourer in agriculture who has supported the greatest number of children without any, or with the least, relief from the parish.

One Guinea to the labourer who has, in like manner, supported the next greatest number of children.

Candidates for these premiums must send to the Secretary, before the 25th of June, a certificate of the case, signed by the minister of the Parish, and also by a member of this society.

CLASS IV.

Two Guineas to the servant in agriculture who has served his master faithfully, and for the longest period.

One Guinea to the servant in agriculture who has the next best character.

One Guinea to the next.

Two Guineas to the labourer in agriculture who has served his master faithfully, and for the longest period. One Guinea to the second. One Guinea to the third.

Two guineas to the boy employed in husbandry who has served his master faithfully, and for the longest period. One Guinea to the second. One Guinea to the third.

Two Guineas to the shepherd who has lived the greatest number of years (not less than five) in the same service.

Three Guineas to the shepherd who has reared the greatest number of lambs in proportion to his flock, consisting of not less than fifty.

Two Guineas to the dairy maid who has served one master or mistress faithfully for the longest period, not less than three years. One Guinea to the second. One Guinea to the third.

Candidates for these premiums must send to the Secretary, before the 25th of June, a written character from their master or mistress, which must be signed by the minister of the parish, and also by a member of the society.

The society reserve to themselves the power to withhold any of the premiums, if there appear not to be sufficient merit in the claim; or to give such part only of any premium as the candidate shall in their judgment deserve.

Eareham, May 28, 1803.

W. W. MAIDMAN, Secretary.

The following Letter was addressed by Mr. Wakefield to the Gentlemen, Farmers, &c. of the County of Essex.

Burnham Wyck, May 1803.

GENTLEMEN,

The great and extensive benefits which have arisen from the Annual Agricultural Meetings of the Duke of Bedford and of Mr. Coke, call upon the Gentlemen of other Counties to attempt an imitation of their patriotic endeavours to promote the Prosperity of their Country.

Impressed with this idea, and solicitous to obtain the sanction of your support to my intention of holding an Annual Agricultural Meeting, similar to that held here last year at the commencement of my Sheep-Shearing; and aware that I am in some measure bound to state, why I have stepped forward to do that which may seem more properly to belong to some Gentleman of greater consequence and better known than myself, I feel anxious to submit to you the motives which have directed my conduct in this instance.

It is obvious to remark that, though few can be summoned to high public situations, yet many have the power essentially to serve their country by promoting the interests, and augmenting the happiness of their neighbourhood. Of the Gentlemen to whom this observation is particularly addressed, some are advantageously employed in pursuits which preclude them from paying that unremitted attention which agriculture requires; while the habits of life and avocation of others present insurmountable obstacles to their successfully promoting an object, I am confident, they feel equally with myself anxious to encourage.

From my farming a considerable tract of land in a neighbourhood where a regular system has prevailed, with little alteration, for a length of years, though where the course of cropping, and much of the practice, is susceptible of but small improvement, I can with less difficulty than most others, and with perhaps more advantage to the farming interests of the county, collect the Agriculturists of different districts together; thereby to increase our

knowledge of other systems and practice, to excite an emulation among the cultivators of this part of the kingdom, and to remove the prejudice which theories, plausible but fallacious, have of late years excited, against all innovations, however beneficial, in farming practice: thus enlarging the experience and observation of the practical farmer, and more generally diffusing useful information.

In arranging the Premiums for the ensuing Meeting, I have been led to give a preference to those objects, by the attainment of which I imagined the greatest advantage would result, and which by being rather improvements upon, than alterations of, the practice of the county, promise to be more readily adopted, and therefore of more extensive service.

From the number of sheep fed in the county, the importance of improvement in our Shearing Practice pointed out the propriety of a Premium, to excite an emulation among Labourers in this employment. Indeed the good effects resulting from such Premiums, in causing an increased activity, and regard for character, in the labouring classes, and in bringing them forward to the notice of their superiors, are sufficiently obvious; for it has been well observed by Mr. Bernard, that rewards are not less necessary to animate exertion, and to fix the labourer in regular and principal habits of life, than punishments to deter him from the commission of crimes.

The different systems of husbandry required by different soils, and the difficulty of removing long established opinions, but by means of experiments made in the neighbourhood, and open to the examination of those who hold them, induce me to offer a small Premium to encourage a trial of the Dibbling, Drill, and the Broad-cast Systems; and though the Premium is certainly inadequate to the magnitude and importance of the object in view, if placed in comparison with the great benefit which will accrue to the county from the experiment, yet it will, I hope, prove sufficient to effect this desirable object, by inducing those who have the opportunity of making the trial, to keep accurate accounts of the experiment, so that a satisfactory opinion may be formed upon the subject.

The backward state of breeding and grazing in this county, forbid the offer, for the present, of any Premium relating to Stock, though I cannot refrain from earnestly recommending an increased attention to the improvement and extension of the South Down and New Leicester Breeds of Sheep, as the most suitable to our feed, and the introduction, as far as possible, of Oxen in tillage; the greatest saving, perhaps, of which the Agriculture of this eastern district of the kingdom is at present susceptible.

I have subjoined the Business of each Day of the Meeting, which will commence at Eleven o'Clock in the Morning, when I shall hope for the honour of your Company.

I am, Gentlemen,
Your most obedient, and most devoted humble Servant,
EDWARD WAKEFIELD.

Burnham Sheep-Shearing.

WEDNESDAY, MAY 25, 1803.

MORNING.
Shearing
Hoing.

AFTERNOON.
Shew of Leicester Rams.
Exhibition of Essex Pigs and other Stock.

THURSDAY, MAY 26, 1803.

MORNING.
Ploughing,

AFTERNOON.
Leicester Rams Let.

ON FRIDAY, MAY 27, 1803.

The Annual Meeting of the Essex Agricultural Society, will be holden at Chelmsford, for distributing Premiums for Stock, an exhibition of which will take place in the Fair Field.

The above letter drew together to Burnham Wyck Farm not only the practical Agriculturists of the County of Essex but a considerable body of the most distinguished amateurs, from various quarters. The first day, Wednesday, was employed in the laudable contests between Corn-Hoers, and Sheep-Shearers, for various prizes; inspecting the stock, and viewing the grazing crops. On Thursday the Ploughing Matches commenced for a silver cup, and other subordinate prizes. Twenty-one ploughs started, three foot ploughs, drawn by a pair of bullocks each; seventeen foot ploughs, drawn by a pair of horses each; and Mr. Coke's Norfolk plough. The quantity of land ploughed by each was two fifths of an acre, which Mr. Coke's plough did in one hour and twenty eight minutes and a half. Mr. Wakefield's foot plough was just upon half an hour longer. Such is the beneficial effect of the Norfolk practice of walking their horses fast. There was not more than five minutes difference between any of the foot ploughs. The bullocks were not quite five minutes after the horses in finishing their work. The decision of the bet between Mr. Coke's and Mr. Wakefield's ploughs, is to be declared at the next Woburn Sheep Shearing.—Mr. Wakefield very hospitably regaled near one hundred and fifty persons each day, at dinner, in a spacious room built for the occasion. Amongst those present were, the Duke of Bedford, Lord Somerville, Sir Joseph Banks, Sir Robert Harland, Sir Thomas Carr, Mr. Howard, Mr. Coke, Mr. Anson, Mr. Western, Mr. W. Smith, Mr. Burgoyne, Mr. Kestwright, Mr. Ackland, Rev. Mr. B. Dudley, Rev. Mr. Rowley, Mr. J. Ellmore, &c.

Essex Agricultural Society.

A very respectable Meeting of the Society for promoting Agriculture in this County, took place in the Fair Field in this Town, on Friday May 27. Amongst the numerous spectators in the field, were the Duke of Bedford, Lord Braybrooke the President, Lord Somerville, Lord Petre, Sir Thomas Carr, Messrs. William Smith, Coke, Anson, Hilary, Burgoyne, Cock, Ellman, Wakefield, Robinson, &c, &c.—The Stock produced, was allowed to be good. Mr. Lamprell's Cart Stallion was deemed a very fine animal; Sir Richard Neave's Devonshire Bull was much admired; several other Bulls were shewn which had great merit, as had also Lord Petre's, and Mr. Coke's oxen. There was a fine show of Sheep, both long and short woolled. The competitors for Sheep Premiums were Messrs. Brampton, Burgoyne, Robinson, Western, Widd, and Wakefield. Mr. Western's Ewe Hoggets won the Sweepstakes. Mr. Robinson produced a good Wether Hogget, a third strain from a South Down Ewe by a Lincolnshire Ram, as an experiment to prove how far he could recommend his Rams; to cross with it was considered a good one: his true Lincolns were greatly esteemed. The judges for the Sheep, were Lord Somerville and Mr. Ellman. For the other Cattle, Mr. Mañon and Mr. Hobbs. There was a good deal of other Stock in the Field, which was not allowed to come in competition, the Proprietors not having given the notice required by the Rules of the Society. A surprizing fat Hog was produced by Mr. Western, which excited considerable curiosity. The company dined at the Black Boy Inn, where the President of the Society took the chair; after several toasts had gone round, Mr. Ellman, in a very neat and appropriate speech, pointed out the utility of promoting the views of the Society, and particularly in improving the breed of Sheep; and combated the erroneous opinion held against these establishments, as tending to increase the price of meat; the contrary, he asserted, being evidently the fact.

Mr. Wakefield received the thanks of the company for his spirited exertions in Agricultural Improvements, and for his appropriating to the use of the Society a Silver Cup, to be ploughed for at Chelmsford, at a period hereafter to be appointed. Several new members were chosen, and the day passed off with the utmost harmony.

At a Meeting of the General Committee of this Society, held at the Shirt-house, in Chelmsford, on the 27th of May, 1803, for the purpose of adjudging Prizes on the Exhibition of Stock,

The Right Hon. Lord BRAYBROOKE, President, in the Chair,

IT WAS RESOLVED,

That Mr. John Lamprell, of Rottenden, be allowed the Silver Medal, for producing at this Meeting the best Cart Stallion-

That Sir Richard Neave, Bart. be allowed the Silver Medal, for producing at this Meeting the best Bull.

That Charles Callis Western, Esq. be allowed the Silver Medal, for producing at this Meeting the best Cow.

That Robert Mitchel Robinson, Esq. be allowed the Silver Medal, for producing at this Meeting the best Ram, long Wool.

That Montague Burgoyne, Esq. be allowed the Silver Medal, for producing at this Meeting the best Ram, short Wool.

That Charles Callis Western, Esq. be also allowed the Silver Medal for producing at this Meeting the best Pen of three long wool Ewe Hoggets.

That Charles Callis Western, Esq. be also allowed the Silver Medal, for producing at this Meeting the best pen of three short wool Ewe Hoggets.

That Robert Mitchell Robinson, Esq. be also allowed the silver medal, for producing at this meeting the best two-year-old wether.

That the Right Hon. Lord Petre be allowed the silver medal, for producing at this meeting the best fat ox.

That Charles Callis Weston, Esq. be also allowed the silver medal, for producing at this meeting the best boar.

We are sorry to learn that the capital cart stallion, Black Prince, the property of Mr. Lamprell, of Rottendon, for which he obtained the medal at the above shew, died the following Sunday evening, after a short illness, of an obstruction in the bowels, which resisted the power of art to remove.

Hackness Show,—1803.

Every admirer "of Nature and of Nature's works" who attended the Agricultural Meeting, held on Tuesday last, at Hackness, near Scarborough, were highly gratified. The variegated foliage of the pendent woods, the luxuriant herbage, and purling streams of the valleys, with which Nature has so bountifully endowed this delightful village, together with the recent embellishments made there by Sir Richard Johnstone, gave a most lively sensation to all present, and struck the approaching stranger with pleasing surprise.

The Judges for the premiums (Messrs. Coates, Fall, and Crosby) seemed to give preference to the new Leicestershire breed of sheep, and the short-horned breed of cattle. They took infinite pains in examining the different kinds of stock; and appeared to have an earnest wish to convince the farmers, what breed would be their true interest to encourage.

The cattle shown for sale fetched good prices; and the accommodations at the Rural Inn, for the numerous company who attended, were far superior than could have been expected; and they were so highly satisfied with it, and with the decisions of the judges, that upwards of sixty pounds was subscribed immediately after dinner towards the next year; so that this institution bids fair to be permanently fixed for the annual show and fair for sheep, cattle, &c. and will be attended with the most beneficial effects to the surrounding country.

The following Premiums were adjudged:

	£.	s.	d.
Mr. Francis Dickson, Wykeham, best bull	5	5	0
Mr. George Atkinson, Hackness, two-year-old bull	3	3	0
Mr. John Cooke, Ayton, best one-year-old bull	2	2	0
Mr. Francis Authard, Scaleby, best milch cow	3	3	0
Sir R. B. Johnstone, best two-year-old heifer	3	3	0

Mr. John Halder, Sheffield, second best ditto	2	2	0
Mr. William Sawdon, best four-year-old draught oxen	3	3	0
Mr. John Gray, Hacknests, best pair of two-year-old steers	2	2	0
Mr. William Cals, Sawdon, best two shear tup	5	5	0
Mr. Francis Dickson, Wykeham, best shearing tup	5	5	0
Mr. John Marshall, Suffield, second best	3	3	0
Mr. Francis Dickson, Wykeham, third best	3	2	0
Messrs. J. and D. Wards, Ayton, best gimmer hogs	3	3	0
Mr. W. Marshall, Suffield, second best	2	2	0
Mr. Thomas Marshall, Scarborough, best boar	2	2	0
Mr. Richard Stubbs, Wykeham, second best	1	1	0
Mr. John Bielby, Twatfdale, for the greatest number of acres of waste land brought into cultivation within the last three years	5	5	0
Lawrence Leadley, Whitby, labourer, for having maintained the greatest number of legitimate children, without any assistance from the parish. The number was 17	2	2	0
William Robinson, for the next greatest number.—14	1	1	0

Dublin Society.

Premiums were lately adjudged by the Dublin Society to the Right Hon. John Foster, county of Louth; Henry Arthur Hubert, Esq. county of Kerry; William Baylor, nursery-man, county of Cork; and Peter Moghan, nursery-man, Queen's county, for rearing larch and Scotch fir, from Irish seed, extracting, agreeable to the terms prescribed by the Society, the seed from the cones.

Premiums were likewise adjudged to James Sinclair, Esq. Donegall; Hon. Thomas Henry Foster, Louth; Thomas Lamphier, Esq. Tipperary; for enclosing plantations of timber trees according to the Society's regulations.

Sussex Agricultural Society.

The Anniversary sheep-shearing for premiums, given by the Sussex Agricultural Society, took place in a barn belonging to T. Tourle, Esq. in St. Ann's, Lewes:—Seven competitors appeared, and sheared each fifteen sheep, generally in a very masterly manner. The first prize of five pounds, was adjudged to William Penfold, labourer to the Right Hon. the Earl of Chichester; the second prize of three pounds, to John Bignall, shepherd to Mr. Dennett, of Woodmancote; and the third prize of two pounds, to John Makkell, shepherd to Mr. Scrase, of Albourne Place.

The shearers were afterwards regaled at the Running Horse, with a good dinner, and plenty of beer, by order of Mr. Tourle; the judges, Messrs. Knight, Hart, and Boys, and other members of the society, with several amateurs, partook of an excellent dinner at the Star.

Hereford Agricultural Society.

Hereford agricultural society was, as usual, very respectably attended at the late general meeting. Mr. A. Knight's heifers were much admired; Mr. Skyrme's five year old ox was nearly seventeen hands high, and of most athletic form. Some Leicester sheep were exhibited, of extraordinary fatness; and good flock of various kinds brought high prices by auction.

Three Warwickshire prize sheep were lately exhibited in Liverpool market, which were allowed to be the fattest ever seen in this kingdom. The fore-quarter of one weighed 145 lbs. and of the other 196 lbs. The fat of one was six inches and the other five inches deep across the breast.

At Reading fair, there was a very good show of horses, which were eagerly bought up at high prices. Cows sold considerably cheaper than at any of the late neighbouring fairs.

At Wilton fair there was a large show of cattle, principally lean stock, which in general brought very high prices.

At Cowbridge fair there was a full show of cattle, which fetched good prices; lean ones were most in demand; horses were scarce, and good ones sold very high.

At Lymington fair a very large quantity of cheese was pitched, yet the sale was unusually brisk at an advance of about 4s. per cwt.

At Andover fair there was a large quantity of cheese, and a brisk sale, though not so sweeping as on the preceding day at Lymington. The currency of old cheese from 68s. to 85s. per cwt.

At Rofs fair there was but an indifferent show of cattle, yet they went off soon, at an advanced price. Horses were plentiful, and sold well. There was a good show of cheese, best sold from 3l. 3s. to 3l. 5s. per cwt. Two meal from 2l. 12s. to 2l. 16s.

At Cheltenham fair there was but an indifferent show of cattle of every description, and a very dull sale.

At Birmingham fair few good horses were bought, and sold at high prices. Cattle and fat pigs were rather on the advance. There was a large supply of grain, price steady.

Worcester toll-free market was not very well supplied with prime beasts, which, therefore, felt an advance in price. Sheep went off about the same as at the last fair, in May.

At Rofs fair there was a good show of cattle, which sold well, at nearly the same prices as at the last fair. Few horses were brought, and they had a dull sale. The supply of pigs and sheep was small, and met prices rather higher than at the preceding fair. The quantity of cheese was inconsiderable, at high prices: best making 70s. per cwt. two and three meal from two guineas to 50s. per cwt.

His Majesty's Spanish flock has proved, by the experience of ten years, that Spanish wool does not degenerate in this country. It is ascertained, that the first cross of a new breed gives to the lamb half of the ram's blood; that the second gives 75 per 100; the third 87½; and the fourth 93½; at which period, if the ewes have been judiciously selected, the difference of wool between the original stock and the mixed breed is scarcely discernable.

The Board of Agriculture have voted a silver medal to Thomas Rook, a day labourer at Melbourne in Yorkshire, for having cultivated three acres of his cottage garth in a very superior manner.

Commerce.

THE additional duty on foreign wines of 20l. per tun of 252 gallons, will cause an advance of 10l. 19s. per pipe of 138 gallons; and the fifty per cent. charged on the present duty on Brandy and Hollands will advance those articles 4s. 9½d. per gallon. The duty on rum not being so much, it will add only 3s. 9d. per gallon. The additional duty of 2s. per bushel on malt, added to the 50 per cent upon the old duty on British compounds, will be equal to an advance of 2s. 9d. per gallon.

In the late additional taxes a considerable advance is made in the stamp receipt duty; a clause is added, which enables the payer to demand a legal discharge at the expense of the receiver.

Manufactures and Useful Arts.

A Gentleman at Chelsea has obtained a patent for an invention, for applying any description of paper capable of being rendered elastic, to the purposes of leather, by tanning, currying, or dressing it in any of the various methods already known for finishing leather from hides or skins. The methods principally used are, by taking wool or woollen rags, either alone, or mixed with those of linen, cotton, hemp, flax, or junk, the properties intended to be given being those of strength and elasticity.

LONDON PRICES OF GRAIN for *June, 1803.*MARK-LANE, *Monday, June 6.**Price of Grain, on board Ship, as under*

WE had a good supply of all Grain to-day. Wheat, at first of the market, obtained nearly last Monday's prices, but afterwards declined, and is from one to two shillings per quarter cheaper.

Barley and Malt is likewise lower—say, two shillings per quarter.

Oats, a good supply, and about one shilling and sixpence per quarter cheaper.

Peas and Beans, of both sorts, also very flat, and do not uphold their prices.

Flour is plentiful, and dull.

Wheat	50s to 64s	Barley	23s to 27s od	White Peas	43s to 48s
Fine	65s to 66s 6d	Malt	42s to 48s od	Grey Peas	33s to 36s od
Rye	33s to 36s od	Oats	21s to 24s	Sm. Beans,	32s to 36s 6d
		Polands ditto	26s to 27s od	Ticks,	30s to 33s od

Monday, June 13.

Though we have now an uninterrupted supply of all Grain, the Wheat trade is brisk, and 2s. per quarter dearer than last Monday.

Barley is lower; Malt the same; the first 1s. and the latter 2s. per quarter cheaper, with very little demand for either.

In Oats we have little variation; the supply being good and prices nearly as last.

Peas and Beans are both cheaper.

Wheat	48s to 65s	Malt	40s to 45s od	White Peas	42s to 48s od
Fine	66s to 67s od	Oats	19s to 24s	Grey Peas	32s to 35s od
Rye	33s to 36s	Polands	25s to 26s od	Sm. Beans,	31s to 34s od
Barley	20s to 25s 6d			Ticks	27s to 31s 6d

Monday, June 20.

We have a good supply of all Grain to-day. Wheats obtain last Monday's prices, with a small advance on very prime samples.

Barley is on the decline, and 1s. per quarter cheaper.

In Malt, scarce anything doing, and prices equally dull with Barley.

Oats are in request for Government use, and 1s. 6d. per quarter dearer.

Peas and beans heavy, and a trifle lower.

Wheat	50s to 64s	Malt	40s to 45s od	Grey Peas	32s to 35s od
Fine	66s to 67s 6d	Oats	20s to 25s	Small Beans	29s to 34s 6d
Rye	33s to 36s od	Polands ditto	26s to 27s 6d	Ticks	27s to 31s 6d
Barley	20s to 24s 6d	White Peas	42s to 49s od		

Monday, June 27.

Our supplies of Grain to-day were not great, yet Wheat has declined, since last Monday, from 3s. to 4s. per quarter.

Barley and Malt offer little for observation, as there is scarce any thing doing in those articles.

The calls of Government for Oats, keep up the price fully to last week's standard. Peas and Beans experience but little variation.

Flour is in plenty, and may be fairly stated at 3s. per sack cheaper.

Wheat	46s to 61s	Malt	41s to 46s	Grey Peas	32s to 35s od
Fine	62s to 63s od	Oats	20s to 26s	Small Beans	30s to 35s od
Rye	32s to 35s	Polands ditto	27s to 28s od	Ticks	27s to 31s
Barley	20s to 25s od	White Peas	43s to 49s od		

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Prices of Hops, Meat, Seeds, Leather, Tallow, &c. for June,
1803.

<i>Price of Hops.</i>		First Week		2d Week		3d Week		4th Week	
Bags.		s.	s.	s.	s.	s.	s.	s.	s.
Kent	—	140 to	150	140 to	155	135 to	155	120 to	140
Suffex	—	135 to	145	140 to	150	130 to	150	120 to	135
Essex	—	120 to	147	140 to	147	130 to	147	120 to	130
Pockets.									
Kent (new)	—	140 to	165	140 to	168	140 to	168	126 to	160
Suffex	—	140 to	155	140 to	160	140 to	160	120 to	150
Farnham	—	— to	—	200 to	240	200 to	240	160 to	200
<i>Seeds.</i>									
Canary Seed (per cwt.)	—	72 to	76	72 to	76	72 to	76	72 to	76
Red Clover ditto	—	— to	—	— to	—	— to	—	— to	—
White Clover, ditto	—	— to	—	— to	—	— to	—	— to	—
Trefoil, ditto	—	— to	—	— to	—	— to	—	— to	—
Carraway ditto	—	46 to	48	46 to	48	46 to	48	46 to	48
Coriander ditto	—	30 to	34	30 to	34	30 to	34	30 to	34
Turnip, (per bushel)	—	20 to	46	20 to	46	20 to	40	18 to	28
Rye Grass, (per quarter)	—	— to	—	— to	—	— to	—	— to	—
Cinque Foil, ditto	—	— to	—	— to	—	— to	—	— to	—
Rape Seed, (per last)	—	421 to	451	421 to	451	421 to	451	421 to	451
<i>Meat at Smithfield,</i>									
To sink the offal, p. ft. 8lb.	—	s.d.	s.d.	s.d.	s.d.	s.d.	s.d.	s.d.	s.d.
Beef	—	4 8 to	6 4	4 8 to	6 2	5 0 to	6 0	5 0 to	6 0
Mutton	—	5 0 to	5 8	5 4 to	6 4	5 0 to	6 0	5 4 to	6 4
Veal	—	4 8 to	6 2	5 0 to	6 4	5 0 to	6 4	5 0 to	6 0
Pork	—	4 4 to	5 2	4 8 to	5 8	4 0 to	5 0	4 4 to	5 0
Lamb	—	5 8 to	7 8	6 0 to	7 4	6 0 to	7 4	6 0 to	8 0
Head of Cattle—Beasts about	—	1,800		1,800		2,000		1,800	
— Sheep and Lambs	—	11,500		7,000		9,500		9,000	
<i>Price of Leather.</i>		d.	d.	d.	d.	d.	d.	d.	d.
Butts, 50lb. to 56lb. each	—	21 to	23	21 to	23	22 to	23	22 to	23½
Ditto, 60lb. to 66lb. each	—	23 to	24	24 to	25	24 to	25½	24 to	25½
Merchants Backs	—	20 to	20½	21 to	21½	— to	22	21½ to	22
Dressing Hides	—	19½ to	21	20 to	22	21 to	22	21½ to	22
Fine Coach Hides	—	21½ to	22½	22 to	23	22½ to	23½	22½ to	23½
Crop Hides for cutting	—	22 to	23	22 to	23	22 to	23½	22 to	23½
Flat Ordinary	—	20½ to	22	21 to	22	21½ to	22½	21½ to	22
Calf Skins, 30 to 40lb. p. doz.	—	28 to	33	28 to	33	28 to	34	28 to	34
Ditto, 50lb. to 70lb. do.	—	27 to	32	27 to	32	28 to	33	28 to	33
Ditto, 70lb. to 80lb. do.	—	26 to	27	26 to	27	26 to	27	27 to	32
Sm. Seals (Greenland)	—	45 to	48	44 to	48	45 to	48	42 to	45
Large do.	—	51 to	71 10s	51 to	71 10s	51 to	71 5s	51 to	71 5s
Tanned Horse Hides	—	18s to	34s	20s to	34s	18s to	34s	18s to	34s
Goat Skins per doz.	—	—s to	—s	—s to	—s	—s to	—s	—s to	—s
<i>Price of Tallow.</i>		s.	d.	s.	d.	s.	d.	s.	d.
St. James's Market	—	4	4	4	4	4	3	4	4½
Clare Market	—	4	4	4	4	4	4	4	4
Whitechapel Market	—	4	4	4	4	4	3½	4	4½
Per stone of 8lb. Average	—	4	4	4	4	4	3½	4	3½
Town Tallow	—	74	0	74	0	73	6	74	0
Russia ditto (Candles)	—	74	0	74	0	75	0	75	0
Russia ditto (Soap)	—	69	0	69	0	70	0	70	0
Melting Stuff	—	60	0	60	0	61	0	62	0
Ditto rough	—	42	0	42	0	43	0	42	0
Graves	—	14	0	14	0	14	0	14	0
Good Dregs	—	10	0	10	0	10	0	10	0
Yellow Soap	—	78	0	78	0	78	0	78	0
Mottled ditto	—	86	0	86	0	86	0	90	0
Curd ditto	—	90	0	90	0	90	0	94	0
Candles, per dozen,	—	11	6	11	6	11	6	11	6
Moulds	—	12	6	12	6	12	6	12	6

Prices of Raw Hides, Hay and Straw, &c. for June, 1803.

<i>Raw Hides.</i>	First Week		2d Week		3d Week		4th Week.	
	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>
Best Heifers & Steers, pr ft.	3 6	to 3 8	3 8	to 4 0	3 8	to 4 0	4 0	to 4 4
Middling —	3 2	to 3 4	3 2	to 3 4	3 4	to 3 6	3 6	to 3 8
Ordinary —	2 10	to 3 0	0 0	to 3 0	3 0	to 3 2	3 0	to 3 4
Market Calf —	9 6		9 6		9 6		9 6	
Eng. Horfe —	14s	to 17s	14s	to 18s	14s	to 18s	16s	to 18s
Sheep Skins —	0 0	to 0 0	0 0	to 0 0	0 0	to 0 0	0 0	to 0 0
Lamb Skins —	2 0	to 3 0	2 3	to 3 3	2 0	to 3 4	2 0	to 3 0
<i>Prices of Hay and Straw.</i>								
St. James's—Hay —	5 18	o	5 10	o	6 —	o	5 17	6
S. raw —	2 7	3	2 4	3	2 5	o	2 8	9
Whitech.—Hay —	5 15	o	5 15	o	5 13	o	5 12	o
Clover —	6 18	6	6 18	o	6 18	6	6 16	6
Straw —	1 18	o	1 15	o	2 —	o	2 —	o
<i>Uxbridge.</i>								
New Wheat per load —	—1	to —1	—1	to —1	—1	to —1	—1	to —1
Barley —	—s	to —s	—s	to —s	—s	to —s	—s	to —s
Oats —	—s	to —s	—s	to —s	—s	to —s	—s	to —s
Beans —	—s	to —s	—s	to —s	—s	to —s	—s	to —s
New ditto —	—s	to —s	—s	to —s	—s	to —s	—s	to —s
Peas —	—s	to —s	—s	to —s	—s	to —s	—s	to —s
<i>Newbury.</i>								
Wheat —	55s	to 68s	48s	to 67s	45s	to 66s	47s	to 67s
New ditto —	—s	to —s	—s	to —s	—s	to —s	—s	to —s
Barley —	20s	to 25s	20s	to 25s	19s	to 23s	20s	to 22s
Beans —	—s	to —s	—s	to —s	—s	to —s	—s	to —s
Oats —	20s	to 25s	20s	to 24s	19s	to 24s	20s	to 25s
Peas —	—s	to —s	—s	to —s	—s	to —s	—s	to —s

BANKRUPTCIES AND DIVIDENDS,

Announced between the 20th of May, and the 20th of June, 1803.

BANKRUPTCIES.

The Solicitors' Names are between Parentheses.

ALLEN, Henry, Liverpool, merchant. (Wiatt and Forreth, Liverpool)
Aslen, John, Providence-row, Finsbury-square, carver and gilder. (Kibblewhite, Gray's-inn place)
Auderson, John, Miller's Wharf, merchant and wharfinger. (Carruthers, Clement's inn)
Baird, John, Tottenham-court, Pancras, stone-mason. Tebbutt, Devonshire street, Queen square
Bullantime, William, Savage-gardens, Tower-hill, merchant. (Oakley, New London street)
Bayley, Thomas, Bishopgate street, wine and beer merchant. (Farnell, church street, Spitalfields)
Blunt, Thomas and James Brown, Tottenham street, engine manufacturer. (Orrell, Winsley street, Oxford road)
Bird, Henry Mertins, and Benjamin Savage, Jefferies square, merchants. (Winter, Kaye, Beckwith, and Freshfield, Swinith's lane)
Buxton, Thomas, and Thomas Bentley Buxton, Leicester, bankers. (Firm Bentley and Buxton's.) Cardale, Hallwards, and Spear, Gray's inn
Bryan, William, late of White-lion court, Birch in lane, merchant, since of Jamaica, and now of Camberwell. (Forbes, Ely place)
Beaton, William, senior, Robert and John Beaton, and William Beaton, jun. Meisborough, brewers. (Holden, Rotherham)
Gole, Charles, York, merchant and taylor. (Barber, Gray's inn)
Courteen, Richard, jun. Great-bell alley, merchant. (Partner with William Hamblin, late of Great bell alley, and of Falmouth, merchant.) Highmore, Bucklersbury
Challenger, James, Coventry, victualler. (Inge and Carter, Coventry)
Cannock, Barabazus, Princes Square, Ratcliffe highway, insurance broker. (Haynes, Fenchurch street)
Cook, John, Warren street, Tottenham-court road, linen-draper. (Adams, Old Jewry)
Drake, William, Ratcliffe Highway, linen-draper. (Burt, Gould square)
Dawton, John, late of Liverpool, now of St. James's street, London, merchant. (Ward, Dennett, and Greaves, Henrietta street, Covent Garden)
Edworth, Charles, Hull, horse jobber. (Evans, Furnival's place)

Frost, John, Redminter, baker. (Lewis and James, Gray's inn)
Fryer, Philip, Manchester, maltster and corn-factor. Huxley, Temple
Graydon, John, East Cheap, insurance broker and merchant. (Sherwood and Parrell, Canterbury square, Southwark)
Georgi, Bathasar, Ratcliffe Highway, chemist. (late partner with David Cannon, Firni, Georgi, and Co.) Jones and Green, Salisbury square
Hobbs, Thomas, Barking, Esq., dealer. (Rodfield, Lawrence lane)
Hornby, William, Gainsburgh, esq. and Sir Joseph Esdaile, Marden Ash, bankers. (Allen and Exley, Furnival's place)
Harmer, John, Tunbridge, Kent, baker. (Johnsen, Ely place)
Harding, Mary, and John Harding, Swanbourne, dealers. (Clark and Richards, Chancery lane)
Hopkins, Samuel, Leeds, merchant. (Evans, Furnival's inn)
Huddleston, William, Manchester, draper. (Ellis, Currier street)
Homens, Thomas, Dumford, miller. (Batten and Antice, Temple)
Jeffs, Thomas, Stoke Newington, carpenter. (Syddal, Addle street)
Jarratt, John, Bristol, hop-merchant. (Cardale, Hallwards, and Spear, Gray's inn)
Johnston, Robert, late chief mate of the Woodford East Indiaman. (Lodington and Hall, Secondaries office, Temple)
Kirkman, Nathaniel, Great Bolton, counterpane manufacturer. (Meddowcroft, Gray's inn)
Knigt, Charles, London street, Fizzroy square, engraver and printseller, for ne ly partner with William Dickenson. (Saxon, Temple)
Littler, Joseph, St. Clement Danes, goldsmith. Platt Bridge court, Fleet street
Liward, John, Bridgewater, jobber in cattle. (Parker, Cheddar street, Axbridge)
Lewis, Thomas Weston, Falmouth, merchant. (Reardon, Corbet court, Gracechurch street)
Lees, John, and Samuel, Halifax, merchants. (Allen and Exley, Furnival's inn)
Lammon, John, Saffron Walden, feedman. (Turner, Margaret street, Cavendish square)
Lewman, John, Whitechurch, coachmaker. (Menckton, Whitechurch)
Lewis, Henry, and William Chambers, Rathbone place, shopkeepers. (Pincro, Charles street, Cavendish square)

- Malley, Simon, *Sculvates, merchant.* (Roffer, Kirby street)
- Manning, James, Thomas Heavybide, and Thomas Borman, *Barge yard, Bucklersbury, Manchester ware-housemen.* (Edge, Temple)
- Markham, William, Colliageman, merchant. (Roffer, Kirby street)
- Morris, William, Coventry, mercer. (Pearman, Coventry)
- Myall, William, Woodbridge, vicualler. (Alexander, Bedford row)
- Neale, John, and Peter Tanner, Cockhill, Ratcliff, dealers in coals. (Heard, Hooper's square, Goodman's fields)
- Parker, William, Liverpool, plumber and glazier. (Top-pink and Bradford, Warrington)
- Flowers, John, Leeds, merchant. (Allen and Exley, Furnival's inn)
- Paley, Richard, Leeds, sheep-builer. (Blakelock, Temple)
- Pixey, Henry, Sun Street, Baker. (Mills, Ely place)
- Railly, John, Deale, Bond court, Walbrook insurance broker. (Harvey and Robinson, Lincoln's inn)
- Rideout, Thomas, Manchester, merchant. (Ellis, Cur-stor street)
- Rippon, John, Bermondsey street, (Scrivener. (Kayll, Garrick hill)
- Smith, William, and John Ashton, Newgate street, linen drapers. (Adams, Old Jewry)
- Smith, Peter, Farnhill Kidwield, Shalloon maker. (Sykes and Knowles, Bowle's court)
- Soden, James, Coventry, scrivener. (Kinderley, Long, and Joyce, Simmonds inn)
- Smith, George, Jun. Love's court, Faternofer row, sil-vermith. (Bland, Ragout court, Clerkenwell, broker and auctioneer. (Heurick, Palgrave place, Temple War)
- Stewart, James, High street, Shadwell, chlmaman. (Smith and Tilton, John's house, St. Paul's church yard)
- Townsend, John, Warrington, hawker and pedlar. (Field, Friday street)
- Thomson, Andrew, and Bartholomew White, Bow lane, hosiery and factors. (Firm, Thomson, White, and Co. (Crowder and Lewis, Frederick's place, Old Jewry)
- Towry, Ann, Shepperton, schoolmistress. (Saunders, Clifford's inn)
- Van Dyke, Peter Dubbeldemuts, Arnold John Geyers Leuven, and Wynand Adriaen de Grauer Vink, Circus, Minorities, merchants. (Watson, Girdle's hall)
- West, John, Somers place, East, Pancras, plasterer. (Phil-lips and Ward, Howard street, Strand)
- Wilke, James, John Watia, and John Beddy, Upper Thames street, wholesale grocers and sugar refiners. (Benn, Threadneedle street)
- Williams, Charles, Lower Tooting, mealman. (Tebbutt, Devonshire street, Queen's square)
- Watson, William, Kensington lane, corn-factor. (Richard-son, Bury street, St. James)
- Whalley, Edward, Bolton, cotton manufacturer. (Board-man, Bolton)
- Wallis, Robert, King street, wholesale linen-draper. (Pearce and Dixon, King street, basket maker. (Hartley, Bristol Warner, Henry, Bristol, basket maker. (Hartley, Bristol)
- Waller, Emanuel, Grantham, coachmaker. (Fitzgerald, Leman street)
- DIVIDENDS ANNOUNCED.**
- Alderford, Christopher, Becles, shopkeeper, July 5
- Barratt, John, Wake-held, gardener, &c. June 16
- Barber, Ralph, Manchester, innkeeper, June 16
- Brady, James, Ipswich, linen-draper, June 29
- Baker, Thomas, and John Shorland, Exeter, woollen dra-pers, July 5
- Blyth, Alexander and Charles, Aldergate street, linen-drappers, June 25
- Bridg, Edward, Duke street, Artillery ground, dyer, June 25
- Bright, Samuel, Coventry, grocer, June 25
- Burnard, Joseph, Jun. Bedford, corn-factor, June 29
- Burkert, Miles, Gray's Thurock, Essex, and Three Craigs wharf, London, soap manufacturer, June 30
- Bernley, Charles, and Joseph Dale, Norwich, warehouse-man, June 27
- Beaton, Sarah, Yeovil, haberdasher and milliner, July 2
- Brooke, Francis, William Farrar, and Robert Rose, Ba-fughall street, warehousemen, July 5
- Craig, James, Union court, broad street, surviving partner of William Haden, insurance broker, June 25
- Calton, Godfrey, Sheffield, linen-draper, June 22
- Collins, Charles, 131, Fleet street, cabinet-maker, July 2
- Colver, Francis, Cleveland street, Pancras, stable-keeper, July 2
- Crichton, William, Great St. Helens, merchant, July 9
- Cooke, James, St. Philip and Jacob, Gloucester, miller, &c. July 6
- Casley, Robert, Duncafer, dealer in horses, July 9
- Chapman, John, Yarmouth, linen-draper, July 12
- Daniel, William, York, coachmaker, June 20
- Dave, Thomas, South Shields, ship-owner, June 21
- Durand, John, Nicholas, Millman street, Bedford row, mer-chant, July 1
- Duff, James, Finsbury square, merchant, July 19
- Davies, Richard, Lamo R. street, spiral-chimney, &c. &c. July 16
- Dring, William and David, Brighthelmstone, shopkeepers, &c. July 5
- Drake, Ann, Hereford, linen-draper, July 16
- Eppes, William and John, Epifon, innkeeper, June 21
- Fawcett, Thomas, Chalfwell street, refisher, &c. June 4
- Feawick, Edward, Kingston, Hull, innkeeper, June 27
- Green, Robert, Gloucester, grocer, June 18
- Gosney, William, Hickey, baker, June 21, final
- Graham, John, Serwick, baker, June 27
- Green, Joseph, Birmingham, merchant, June 28
- Gostord, Robert, Hayward, Fifield street, baker, July 26
- Gillat, John, Joseph Hawksworth, and William Gillat, Sheffield, brewers, June 16, joint and separate estates
- Hughes, Robert, Chaudon street, Covent Garden, draper, June 25
- Hamaway, Daniel, Brandon merchant, June 18
- Holt, Charles, and Edward Davis, Hatton Wall, Jewellers, &c. June 21
- Heald, William, Timothy, and Richard Henry, Wakefield, Joseph Heald, King street, London, and Richard Fother, Wakefield, merchants, separate estates of William and Timothy Heald, June 18
- Hewitt, Grant, Shpton Lee, dairyman, June 21
- Hurrell, Thomas, Conduit street, taylor, June 24
- Howett, John, St. Martin's lane, carpenter and builder, July 5
- Hunt, John, late of Preston Hows, now of Houndslitch London, July 5
- Hardy, William, Gloucester, linen-draper, July 6
- Hammond, George, Stamford, mercer, July 14
- Howe, James, Jun. Woodbridge, hemo manufacturer, July 14
- Hutches, William, Hatherston, corn-dealer, July 25
- Hirchen, Abraham, Waltham, miller, &c. July 25
- Holmes, William, Pudley, dry-fitter, July 13
- Jones, John, Birmingham, draper, July 28
- Johnson, Thomas, Kilmartin, grocer, June 14
- Juncheon, Richard Bayley, Droitwich, miller, July 1
- Jackon, Nicholas Man, and George Bartlett, Gerard street, Soles, ironmongers, July 2
- Jackon, Richard, and John Hankin, Oxford street, rec-tifiers, &c. &c. July 12
- James, Isaacuel, Middle row, Holborn, linen-draper, July 26
- Kirkpatrick, James, Pope's-heads alley, merchant, July 9
- Lonsdale, Thomas, Lower Brook street, linen-draper, June 14
- Lane, Benjamin, Birch lane, infuser, July 1
- Liddell, George, Newcastle, merchant, June 14
- Longman, James, and Francis P. Broderip, Chesapeake, &c. musical-instrument makers, June 28
- Loose, John, Thomas Francis, and Thomas Boyleston, Ni-cholas lane, merchants, July 5
- Lanchester, Ann, Saville street, Piccadilly, June 25
- Leith, Andrew, Shoe lane, Fleet street, smith, July 2
- Levy, Thomas, King's Cross, hemo manufacturer, July 13
- Langwith, John, Great Chatham, builder, July 13
- Monday, Joseph, Kingston, Hull, corn factor, July 5
- Mercer, William, Tunbridge, miller, June 25
- Martin, Robert, and Mark Lafr, Walling street, warehouse-man, July 2, final
- Mallinson, George, and Josiah Sheard, Huddersfield, dyers, July 5
- Meades, Lewis, Crutched friars, merchant, July 9
- Nesbit, Richard Deborah, Louisa Sophia, and Francis, mil-liners, June 18
- Neale, John, Brick lane, Spitalfields, salesman and butcher, June 28
- Norman, John, Fletcher, Bristol, baker, June 18
- Onion, Francis, Jun. Croydon, miller, July 5
- Perkins, John, Finchley, baker, July 7, final
- Pyne, Thomas, Southwark, victualler, &c. &c. June 25
- Pekcover, Harris, Ipswich, woollen-draper, &c. &c. June 25
- Redhead, Robert, Mark lane, wine-merchant, June 25
- Ruffell, John and Edward, William Hartland, and Thomas Williams, Worcester, merchants, June 14
- Robinson, John, Pretor street, scrivener, June 21
- Rowan, John, Burton-on-Trent, hawker and pedlar, July 4
- Sheringham, John, Great Marlbro' street, paper-draiser, June 11
- Sutherland, James, Bath, haberdasher, June 11
- Smith, Robert, Streatham and Charles Smith, Croydon, brewers, July 5, joint estate, and separate estate of Ro-bert, both final
- Syers, Thomas, Manchester, stationer, June 20
- Scott, James, and Francis Roach, Canie street, Leicester fields, linen-draper, June 25
- Smith, William, Monkwearmouth, ship-builder, July 4
- Sheerinn, Thomas, Woodchester, clothier, July 6
- Stahlenschmidt, Frederick, Whitecanal road, grocer, July 12, final
- Stanley, John, Fleet Market, brandy-merchant, June 16
- Tatlock, Charles, merchant, Cateaton street, July 5
- Taylor, John, Worcester, draper, June 5
- Turner, Samuel, Jun. Laytonstone, farmer, July 1
- Tatlock, James, Finch lane, broker, July 2
- Wickes, John, Edward, West Crisped, dealer, June 4, final
- Wrighton, Thomas, Boncaste, mercer, &c. June 13
- Wrighton, Daniel, Little Aine, Box drifter, June 29
- Whitehead, Sarah, Tamworth, mercer, June 24
- Watson, William, Fenchurch street, merchant, June 25
- Wraynor, Thomas, Tur on street, carpenter, June 18
- Warren, John Spooner, Birmingham, dealer, June 27
- Wells, John E. Colchester, merchant, July 6
- Wilkinson, Samuel, and Joseph Burroughs, High Wycombe and Great Marlborough, hawker and linen-draper, July 5
- Woodbridge, George, Wimbomburton, dealer, July 9
- Wild, James, Hulse place, brewer, July 7

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PRICES OF COALS AT THE COAL EXCHANGE, LONDON,
For JUNE, 18c3.

Names of Coals.	Mon. 6th.	Wed. 8th.	Frid. 10th.	Mond. 13th.	Wed. 15th.	Frid. 17th.	Mond. 20th.	Wed. 22d.	Frid. 24th.	Mond. 27th.	Wed. 29th.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Adair's Main	42 6			42 3					42	43 6	
Baker's Main											
Bedford Main							38 9				
Benton	45 6		45	44 6	44			42	43 6	43 6	
Biddick Main											
Bigg's Main	49	50	49	48 6				45	46	48	
Bladon Main											
Blyth	39 9			41 6							
Boundry											
Bourn Moor	40 9	41					39	39	42	42 9	
Branding				44			40			43 6	
Birtley				39 6			37 3	45		41	
Byker											
Byker, High & Low											
Cowpen	40 9				42 3		41 6	41 6			
Derwent											
Eden Main	40 9									42 9	
Eighton Main		44 3					40				
Flockton											
Greenwich Moor											
Haigh Moor											
Hartley	39 9				41 9		41				
Heaton Main	48 6		49	48 9				45	46	47 6	
Hebburn Main	48 9		49 3	49	49			45	46	47 6	
Holywell		51									
Kenton Main	48 3		49	49				44 6			
Lambton's Low dit.											
Lawson's Main											
Mosley Hill											
Montague Main				42 9							
Mount Moor											
Murton											
Murton High Main											
Newbottle											
New Tansfield											
Pitt's Tansfield M.				45	45			42 9	45		
Primrose	40 9						39		38 6		
Pontop		45		44 6				42 3	44		
Pecey		50									
Rectory											
Ruffel's Main	40 6						39				
Sheriff Hill				42 6							
South Moor							39				
Stanley Main											
St. David											
Team											
Tyne Main											
Usworth Main											
Walbottle Moor				42			39	38 6			
Walker	48 3	50	49	49	48			44 6			
Wall's End		51	50	50	49 6			40	47 6	48 6	
Warwick	37 6	37 6						36 6			
Wharton											
Willington	48 9			48 9			45		46		
Wylam Moor											
Wentworth											
Whitefield											
Wooler Main											

AVERAGE PRICES OF CORN, by the quarter of eight Winchester bushels; and of OATMEAL, per boll, of 140 pounds Avoirdupoise:
From the Returns received in the Week, ended JUNE 18, 1803.

INLAND COUNTIES.

COUNTIES.	Wheat.		Rye.		Barley.		Oats.		Beans.		Peas.		Oatmeal.	
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
Middlesex	65	8	36	0	27	3	26	4	35	0	39	9		
Surrey	64	4	34	0	26	5	24	0	35	6	36	0		
Hertford	56	10	35	6	26	8	24	4	36	0	38	3		
Bedford	55	2	35	2	24	0	24	0	33	10				
Huntingdon	52	9			22	4	19	6	27	9	33	7		
Northampton	55	6	30	0	21	0	19	6	29	3	28	0		
Rutland	60	3			24	6	20	0	32	0			57	3
Leicester	58	10			23	10	20	9	32	7	31	1	35	4
Nottingham	64	4	40	0	29	9	20	4	39	6				
Derby	64	4			26	0	22	2	39	4	32	0	26	6
Stafford	63	8			28	6	22	7	37	11			29	5
Salop	61	8	40	4	26	5	25	8					63	7
Hereford	58	7	35	2	24	9	24	4	37	3	35	8	61	1
Worcester	60	10	29	4	27	4	28	3	35	11	42	4		
Warwick	61	9			26	0	22	5	37	0			37	7
Wilts	57	4			23	8	22	0	38	8	35	0		
Berks	63	0			24	9	24	1	35	11	35	3		
Oxford	56	4			23	2	22	3	32	0	33	10		
Bucks	58	0			24	0	23	4	33	9	40	3		
Brecon	62	4	36	8	28	0	20	0					34	8
Montgomery	62	8			35	7	19	6					42	5
Radnor	57	10			24	1	22	3					60	8

Maritime Counties.

Essex	60	10	32	6	25	0	25	4	32	3	34	6		
Kent	63	0			26	6	25	10	32	2	36	0		
Suffex	60	4			32	0	23	8						
Suffolk	60	2			23	7	22	1	30	1	32	9	52	6
Cambridge	53	9			23	6	19	8	29	7				
Norfolk	60	5	36	0	22	10	21	0	30	4	44	0		
Lincoln	56	4	29	1	24	7	18	11	32	4				
York	58	9	36	9	23	8	19	3	33	10	58	8	40	3
Durham	64	8					22	5						
Northumberland	59	9	40	0	22	6	22	2	34	0	38	0		
Cumberland	70	0	45	0	28	10	26	5						
Westmorland	77	6	54	0	31	4	28	4					21	2
Lancaster	62	3			29	8	21	10	42	0	48	0	18	3
Chester	61	6					21	8					19	10
Flint	68	9												
Denbigh	66	5			30	9	21	4					38	2
Anglesea														
Carnarvon	63	4			26	0	18	3					35	9
Merioneth	67	10	48	0	32	0	21	9					36	9
Cardigan	58	10			18	11	15	0						
Pembroke	53	2			20	10	15	4						
Carmarthen	72	0			21	10	14	8						
Glamorgan	61	4			27	9	23	7						
Gloucester	58	4			23	11	22	1	31	2				
Somerset	60	3			23	2	19	10	30	8				
Mohmouth	64	9			24	2	26	6						
Devon	69	0			24	4	21	5						
Cornwall	67	1			28	8	24	0						
Dorset	61	7			25	0	24	0						
Hants	62	2			24	0	23	4	35	0				

A Table of the Prices of STOCKS in June, 1863.

Days	Bank	3 per Ct.	3 per Ct.	4 per Ct.	5 per Ct.	Long	Short	Imp.	Imp.	India	Oriental	5 per Ct.	Consols
June 1	Stock.	Red.	Shut	Consols.	Navy.	Ann.	Ann.	3 per Ct.	Ann.	Shut	Ann.	Irish	for Act.
2	147½	57½		73½	93½	17½	3½	56½		178			58½
3	151½	58½		74½	92½	17½		56½					59½
4		58½		74½	93½	17 5-16	3 13-16	56½					59½
5		57½		72½	92½			56					58½
6		57½		72½	92½	17 1-16		56					58½
7		57½		73½	92½	17 1-16		56					58½
8		57½		73½	92½	17 1-16		56					58½
9	150½	58		73½	92½	17 1-16		56½					58½
10	149½	57½		74	92½	16½		56½					58½
11	150	57½		73½	92	16 15-16		54½					58½
12		56		71½	91½	16 5-16		54½					57½
13	145	56½		71½	91½	16 3-16		54½					57½
14	146	56½		72½	91½	16 3-16		54½					57½
15	147	56½		72½	91½	16 11-16	3 11-16	55½					58½
16		56½		72½	91½	16 11-16		55½					58½
17		56½		72½	91½	16 9-16		55					57½
18		56½		72½	91½	16 9-16		55					57½
19		56½		72½	91½	16 9-16		55					57½
20		56½		72½	91½	16 9-16		55					57½
21	146	56½		72½	91½	16 9-16	3 11-16	55					57½
22		56		72½	91½	16 9-16		55					57½
23	145½	56		72½	91½	16 9-16		55					57½
24		56½		72½	91½	16 9-16		55					57½
25		56½		72½	91½	16 9-16		55					57½
26		56½		72½	91½	16 9-16		55					57½
27		56½		72½	91½	16 9-16		55					57½
28		56½		72½	91½	16 9-16		55					57½

TO OUR CORRESPONDENTS.

HAD we in our last number given an answer to the enquiry of our Correspondent Rusticus, it would have been not only vague, but unpleasant both to his feelings and likewise to our own, and would, at the same time, have been a reflection upon the zeal and spirit of such friends of agriculture as spend a considerable part of the winter in London. We hope, however, that we are now enabled to announce a prospect, at least, of Mr. Nicholls's liberal plan being carried into execution, in the course of next winter. The proposal seemed to meet with general approbation, in various conversations, at the Woburn Sheep-shearing, and likewise at the Holkham Meeting. The plan is, to purchase a House in, or in the neighbourhood of, Spring Gardens, that will afford a Lecture Room, a Library, and a Conversation Room. The Library is intended to contain every book, in different Languages, that can be obtained on the subject of Agriculture. It is likewise proposed to purchase a small piece of land, as near London as may be, in which the operations of the various newly invented implements of husbandry may be perfectly exhibited and minutely explained by the Lecturer. The expence of purchasing the premises, books, &c. to be defrayed by a Subscription. We heartily wish success to the undertaking.

Our Engraving of Mr. Johnes's Feeding House, will, we hope, induce our readers to honour us with drawings of any improvements which they may have made, or have seen. We had a promise, a few months ago, of a sketch and description of the admirably well constructed Farm Yard of Mr. Crook, of Tetherton, but have not yet received it.

We thank Philaethes for corrections of errata, and should feel ourselves much obliged to any of our Correspondents who will favour us in a similar way: as we wish to make our Magazine as perfect a vehicle of information, and as perfect a Book of reference, as possible.

Wiltoniensis in our next.

We are sorry Mr. Grebell's Account of the proceedings of the Agricultural Society of Kent, arrived too late for insertion in this number.—It is what we wish to receive of every Society in the united kingdom.

The Title, Preface and Index to this volume, will be over with our next number.

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